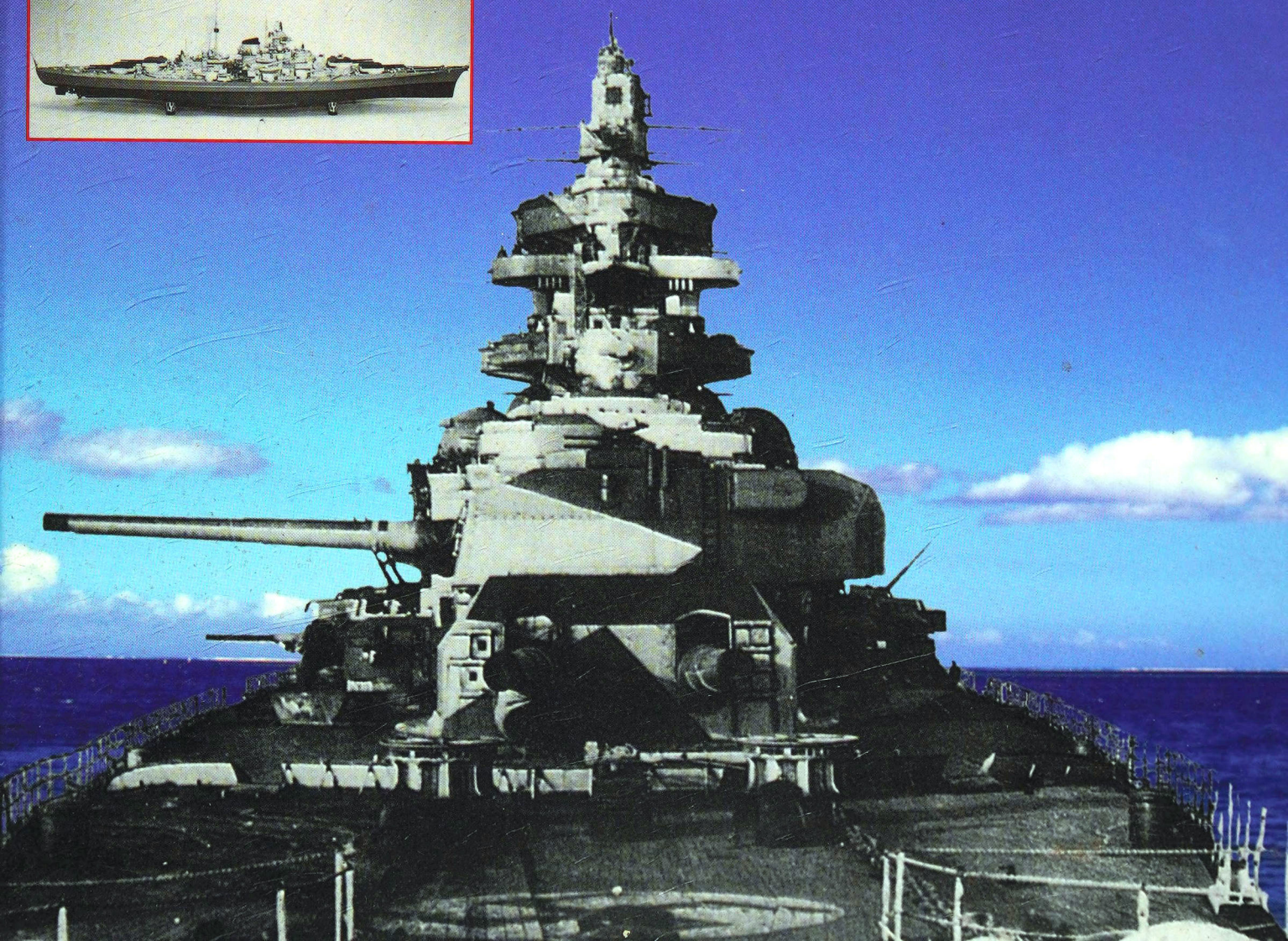


THE MILITARY BOOK CLUB

Battleship TIRPITZ

Gerhard Koop & Klaus-Peter Schmolke



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Gerhard Koop
Klaus-Peter Schmolke



Jacket illustrations:

Front: *Tirpitz* in 1944.

A model of *Tirpitz* as she appeared in 1943-4.

Back: Internal profile and deck plan.

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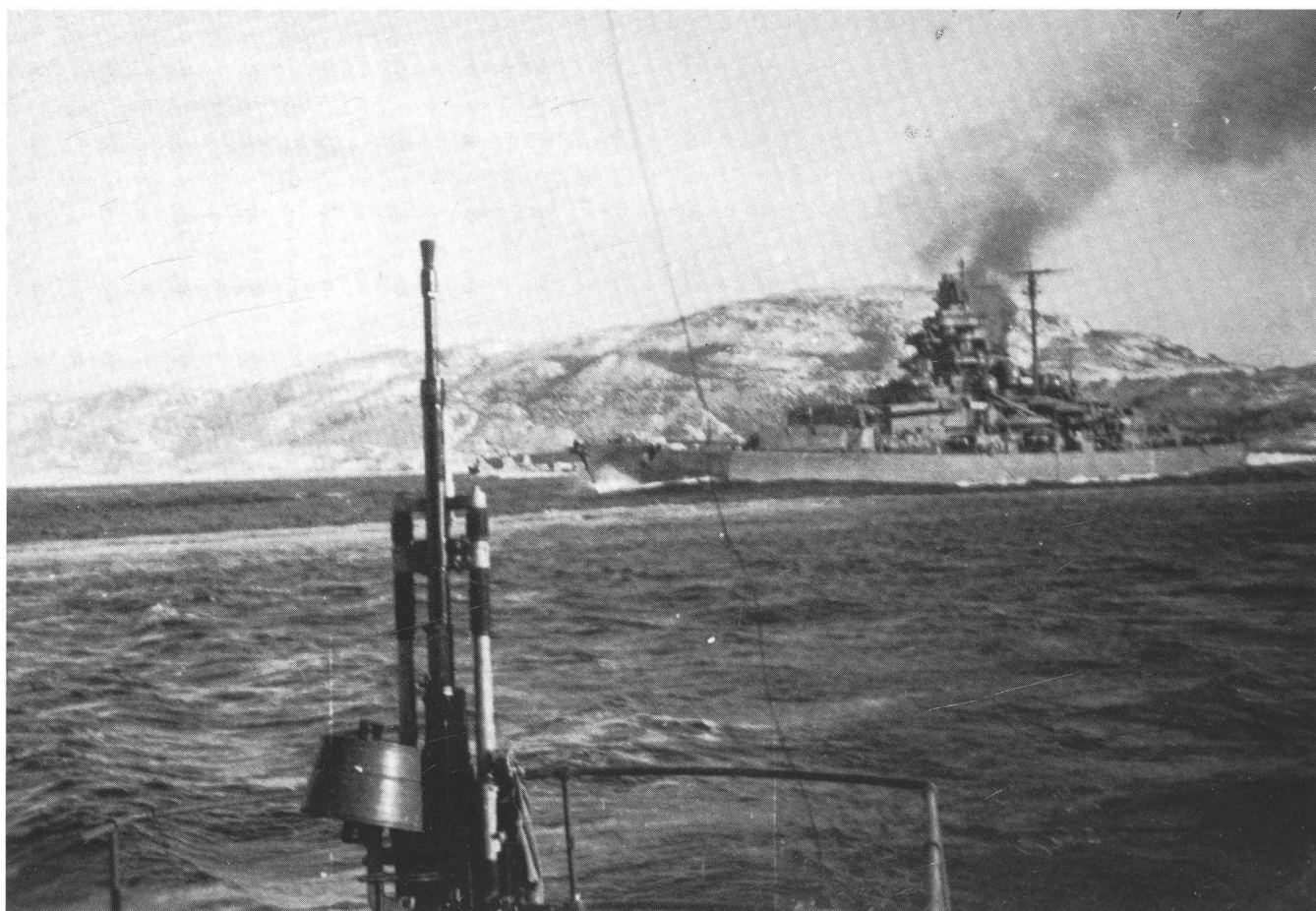
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Tirpitz underway in 1943, seen from one of the many harbour protection vessels.

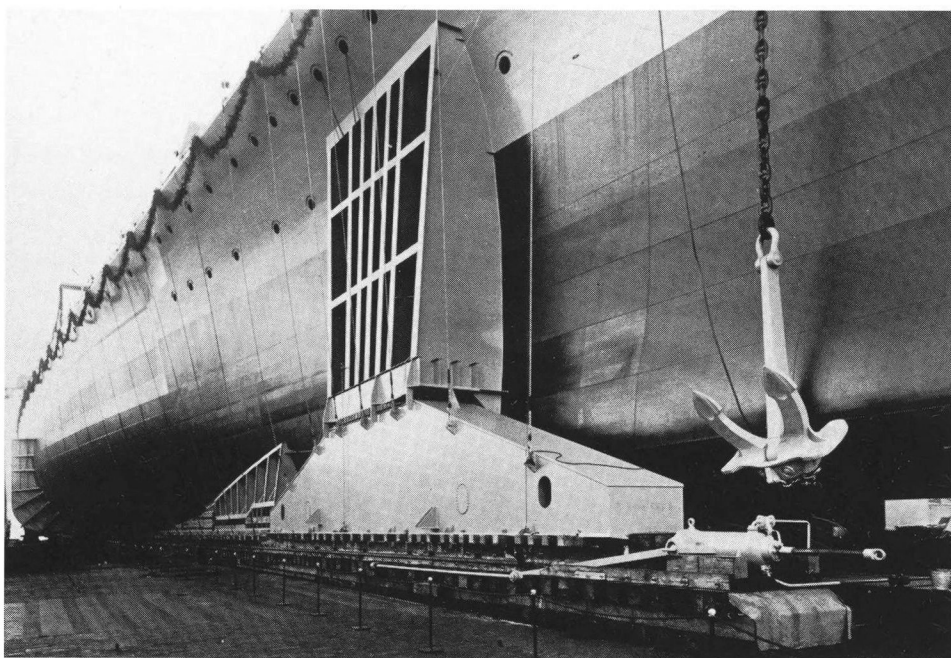
Preface

This publication covers the battleship *Tirpitz* with reference to *Bismarck*. It contains the most important technical information along with a brief history of battleship development. There are numerous detailed photographs of the ship and machinery used in both *Tirpitz* and *Bismarck*, some of which are rare, and there are also many photographs of a model of *Tirpitz* which was built for the Kuestenmuseum in Wilhelmshaven.

The drawings of *Tirpitz*, all in the uniform scale of 1:300, are smaller-scale renderings of those which accompanied the first German edition of the book. It is hoped that this collection of data, specifications, photographs and line drawings will provide the modeller and shiplover with all essential information on his chosen subject, and direct him to further sources of research material.

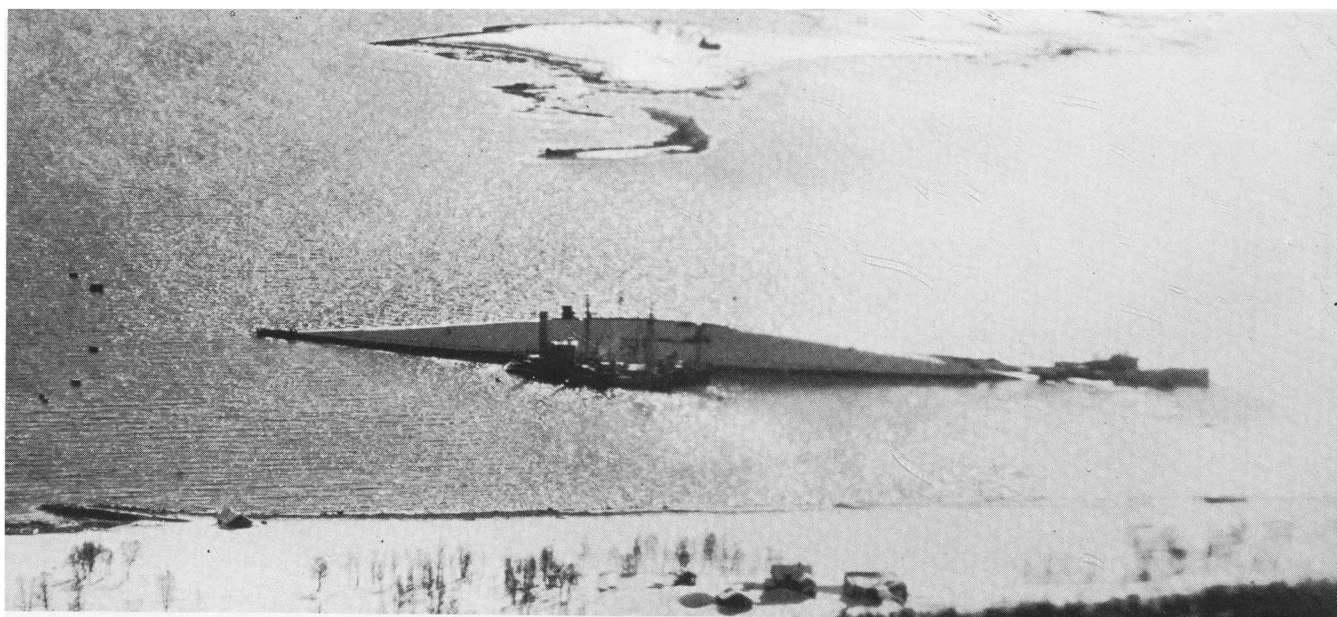
I especially wish to thank Mr Klaus-Peter Schmolke, who patiently spent many hours drawing plans and sketches, and also Dr Reinhardt, the custodian of the Kuestenmuseum, Wilhelmshaven, who kindly gave permission for photographs to be taken of the *Tirpitz* model. Last but not least I wish to extend my thanks to my friend Mr F Bavendamm, who, with his usual organisation and skill, took all the photographs of the model.

Gerhard Koop



The beginning and the end:
Tirpitz prior to her launch, seen from a forward position on starboard. Note the size of the break shield with its console and also the anchor which is clear for the launch...

... *Tirpitz* as a wreck, a few weeks after she capsized. Salvage operations are still underway.



History of the development of battleships

Tirpitz was the last and also the largest and most modern battleship built for the German *Kriegsmarine*, the naval branch of the national-socialist German armed forces, the *Wehrmacht*. Because of the war, other larger and even more powerful units never reached completion. The ones that were already laid down were broken up again, and other developments never got any further than the drawing board.

In the beginning was the sailing ship. Until the nineteenth century, large sailing warships with three masts and high freeboard, carrying a large number of guns on the broadside, were the backbone of every seafaring nation and especially of the two naval superpowers Great Britain and France. There were no uniform classes, warships were simply classified by the number of guns. Battle tactics emphasised parallel lines of ships exchanging broadsides. It was these tactics which later led to the designation 'ship of the line', also referred to poetically as 'wooden walls'.

Following the invention of the steam engine and the paddle wheel and screw propeller, navies converted existing sailing ships and new ships were equipped with the new propulsion. The advantage of steam propulsion was obvious, as steam-powered ships could easily outmanoeuvre any sailing ship. Further developments followed in the mid-nineteenth century. The muzzle-loading gun was gradually replaced by the breechloader, new projectiles were developed, round shot gave way to shells, and rifled guns replaced the smoothbore. From then on shells could be fired with a higher muzzle velocity, which again led to guns with longer ranges.

In the 1850s, warships in Germany were also referred to as 'screw ships of the line'. They were still sailing ships but were equipped with steam engines, and were two-deckers and three-deckers with guns on the broadsides. Because of the rapid development of weapons technology, ships soon had to be armoured. At first, thick wood and other materials were tried, but Krupp in Germany and other manufacturers elsewhere soon developed suitable iron and steel armour.

In the second half of the century, the screw ship of the line evolved into the 1st class armoured ship. Originally these ships had a broadside armament (from approximately 1858 to 1865) but that gave way to the central battery ship. In parallel, the casemate ship was introduced by 1865 and was used until around 1875 before being upstaged by the turret ship which appeared

in 1875 and was still being built approximately twenty years later.

By this time in Germany the capital ship was described as the *Linienschiff* 'ship of the line', a designation which had to give way to *Großlinienschiff* 'large ship of the line' after *Dreadnought* had appeared in 1905. The final step was the *Schlachtschiff* 'battleship', the last examples of which are the *Iowa*-class of the US Navy.

In the German Navy, this development was slow. The first units of this type were mainly solitary and usually designed and built abroad, often in Great Britain and France. Other ships were acquired second-hand. There was no uniformity at all in respect of size, appearance, armament, machinery, or speed. In the German Navy (until 1867 the Prussian Navy, from 1867 - 1871 the North German Federal Navy, after 1871 the Imperial Navy), distinctions were made between armoured frigates and armoured corvettes, both of which came under the general designation armoured ships. According to an order dated 29 August 1893, armoured ships had to be divided into three different groups, I, II or III. Another order followed on the 27 February 1899 cancelling classes II and III, and re-designating the ships of class I under a new and uniform designation *Linienschiff*.

This designation was retained - even though the units of the *Nassau*-class were also referred to as large ships of the line - until the end of the 1930s. The German ships of this type always sported certain uniform features: heavy main armament with uniform calibre (there were a few exceptions), a strong secondary armament arranged in casemates, and more or less similar machinery and speed. This enabled the ships to fight in a line of battle, according to the then valid tactical regulations. The last battle of this kind was the Battle of Jutland, which took place on 31 May 1916.

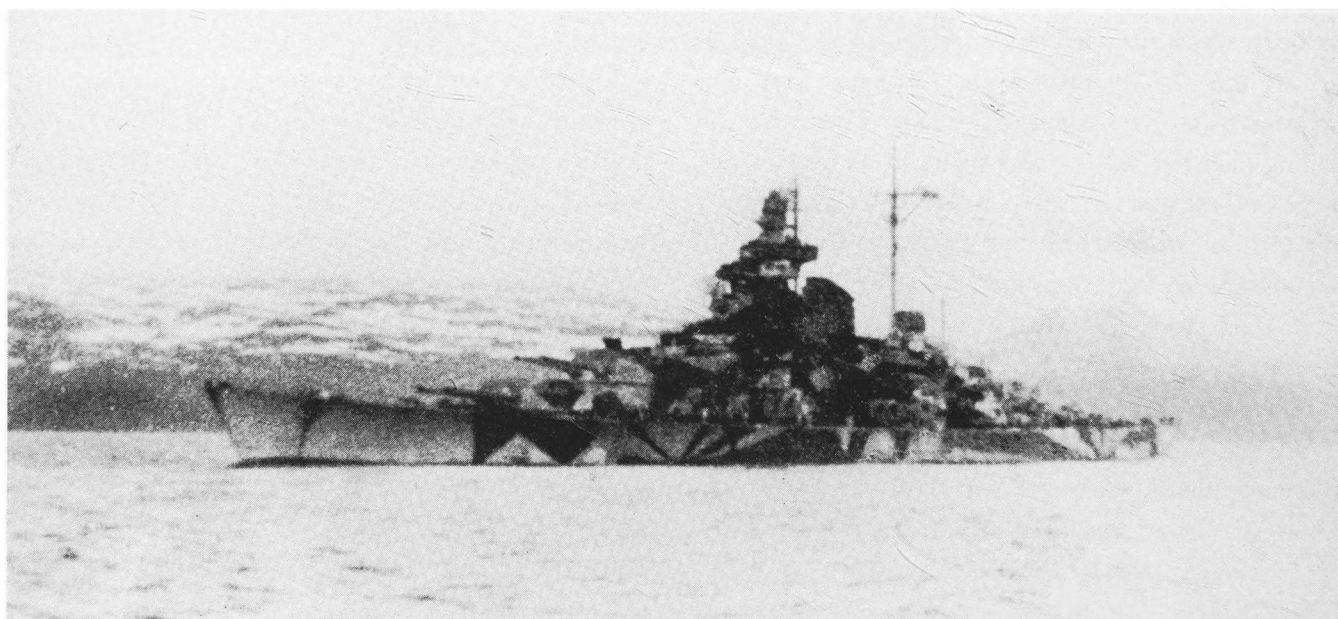
New methods were applied when Germany built its first battleships in the early twentieth century: they became larger and faster. The armament was not changed very much, but the guns themselves were modernized with new control systems. The armour was made of improved material. But the days of these giants of the seas were numbered as a new weapon arrived on the scene: the aircraft. The Second World War clearly proved that even the largest and most powerful ships were unable to ignore this threat. In May 1941, *Bismarck*

was brought to action by this new weapon and, seven months later, the British ships *Repulse* and *Prince of Wales* followed suit. The war in the Pacific sealed the fate of the capital ship. The large seapowers drew their

conclusions, and from then on their battleships only took part in joint operations with carriers or air forces, one protecting the other. After the war most of these battleships were scrapped.



Operation Rösselsprung, July 1942. A view from *Tirpitz* with other heavy units astern. Directly behind *Tirpitz* is *Admiral Scheer*, and behind this cruiser is *Admiral Hipper*. In the foreground 38cm turret C is being painted by sailors.



Tirpitz, 31 March 1944. Note the elevated platform behind the mainmast which had to be fitted to carry the radar set Würzburg-Gerät.

Technical data of Tirpitz

Displacement, official:	35,000 tons (35,560 tons)	Equipment:	4 x aircraft Aradao Ar 196
Displacement, design (1941):	45,474 tons		7 x searchlights
Displacement (1941):	49,429 tons		14 x boats
Displacement, full load (1944):	53,500 tons		3 x bow anchors
			1 x stern anchor
Length overall:	253.6m	Armament:	8 x 38cm/L47 in four twin mountings
Length waterline:	241.72m		12 x 15cm/L55 in six twin mountings
Beam:	36m		16 x 10.5cm/L65 AA guns in eight twin mountings
Design draught 1935:	9.9m		16 x 3.7cm/L83 AA guns in twin mountings
Max. draught (at 53,890t):	10.61m		12 x 2cm AA guns in twin and quadruple mountings, later 78
Side height:	15m		8 x 53.3cm torpedo tubes in two quadruple mountings
Shaft horsepower design:	138,000	Fire control arrangements	5 x 10.5m base rangefinders
maximum:	163,026		1 x 7m base rangefinder
Speed, design:	29 knots		2 x 6.5m base rangefinders
Speed, maximum:	30.8knots		4 x AA director control towers
Range:	8,870nm at 19 knots	Radar:	radar sets FuMO mounted on the foretop, the fore conning tower and the aft conning tower
	9,280nm at 16 knots		
Complement (1943):	108 officers		
	2,500 men		
Machinery:	12 x Wagner high-pressure boilers superheated		
	3 x sets geared turbines		
	3 x shafts with one 4.8m propeller each		
	2 x rudders		
Power supply:	2 x power plants with four diesel generators 500kW each,		
	2 x power plants with five turbo generators 690kW and one turbo generator 460kW, each		
	1 x power plant with one diesel generator 550kVA		

Armour protection (compared with Bismarck):

Most of the armour plating used for armour protection consisted of KC armour steel.

KC - Krupp cemented, i.e. carbon content 0.34%, nickel content 3.78%, manganese content 0.31%, and chrome content 2.06%. There were two classifications for armour steel: Ww - Wotan, weich (Wotan, soft); and Wh - Wotan, hart (Wotan, hard). Wh had a rupture resistance of 85-95kg/mm², a strain of 20% and a yield point of 50-55kg/mm². Ww had a rupture resistance of 65-70kg/mm², a strain of 25% and a yield point of 38-40kg/mm².

Belt:	300mm KC, tapering to 270mm at the top tapering to 170mm at the bottom
Citadel:	145mm KC on 50mm teak backing
Hull front:	60mm Wh, welded
rear:	80mm Wh, welded
Bulkhead upper part of the hull:	25mm Wh, welded

Bulkhead below armour deck between torpedo bulkheads:	200mm Wh
Transverse armour bulkhead to upper platform deck from outer plating to torpedo bulkhead:	100mm Wh
Transverse armour bulkhead under the upper platform deck between torpedo bulkheads:	80mm Wh
Transverse armour bulkhead under the upper platform deck between torpedo bulkhead and outer plating:	20mm Wh
Longitudinal torpedo bulkhead:	45mm Ww, riveted
Armour deck:	80mm Wh, riveted
Armour deck above magazines:	100mm Wh
Armour deck forecastle:	30mm Wh
Armour deck aft:	80mm Wh
Armour deck above steering gear:	100mm Wh
Upper deck:	50mm Wh, welded
Upper deck around turrets:	80mm Wh, welded
Barbettes of 38cm turrets:	340mm KC (front, middle) 340mm KC (sides) 340mm KC (rear) 220mm (rear, <i>Tirpitz</i>)
38cm turrets:	360mm KC (front) 220mm KC (sides) 320mm KC (rear) 180mm KC (roof, front) 180mm KC (roof, rear)
15cm turrets:	100mm KC (front) 40mm KC (sides) 40mm KC (rear) 40mm KC (roof)
10.5cm	shields 20mm
Fore conning tower:	350mm KC (sides, slope) 200mm KC (roof) 220mm KC (access tunnel) 70mm KC (deck)
Aft conning tower:	150mm KC (sides, slope) 50mm KC (access tunnel)
Upper armour belt:	145mm KC
Slope of armour belt, midships and at the ends:	320mm KC (<i>Bismarck</i>) 315mm KC (<i>Tirpitz</i>) (tapering to 170mm)

DECKS

Upper deck above machinery centre: 50mm Wh
(*Bismarck* and *Tirpitz*)

Upper deck above magazines centre: 80mm Wh
(*Bismarck* and *Tirpitz*)

Slope above machinery centre: 110mm Wh
(*Bismarck* and *Tirpitz*)

Slope above magazines centre: 110mm Wh
(*Bismarck* and *Tirpitz*)

Armour deck above machinery centre: 50mm Wh (*Tirpitz*)
80mm Wh (*Bismarck*)

Armour deck above magazines centre: 100mm Wh (*Tirpitz*)
95mm Wh (*Bismarck*)

Slope above machinery: 110mm Wh
(*Bismarck* and *Tirpitz*)

Slope above magazines: 120mm Wh
(*Bismarck* and *Tirpitz*)

SIDE PROTECTION:

Turret A down to 3.05m bulkhead 53mm
torpedo bulkhead 45mm

Turret B down to 3.51m bulkhead 53mm
torpedo bulkhead 45mm

Midship section down to 5.5m bulkhead 53mm
torpedo bulkhead 45mm

Turret C down to 3.35m bulkhead 53mm
torpedo bulkhead 45mm

Turret D down to 3.05m bulkhead 53mm
torpedo bulkhead 45mm

Rangefinder conning tower 100mm KC (horizontal)
200mm KC (slope)

Rangefinder aft conning tower 50mm KC (horizontal)
150mm KC (slope)

Foretop 20mm (horizontal)
60mm (sides)

Rangefinders 20mm (horizontal)
50mm (sides)

UNDERWATER PROTECTION:

The ship was protected from explosive charges up to 250kg TNT. The width of the armour protection was 5.5m, and the longitudinal bulkheads were 53mm thick. The whole protective system had a depth of 1.7m. The safety zone for the citadel provided immunity against hits from 38.1cm shells (15in) weighing 1,016kg between 10,973m and 21,031m (for the machinery) and to 23,319m (for the magazines).

[illegible]

50

80

110

145

170

320
375

Main frame

1 - feedwater cell
2 - fuel oil tank
3 - terreplein

Operating instructions and manuals

(general account)

By the time she is commissioned a ship has received her final outfit of equipment and supplies: fuel and lubricants, ammunition, tools, spare parts, and, of course, provisions. The ship's equipment also includes all plans, drawings and other documents directly relating to the ship, including: calculations on displacement; body plans; drawings describing the results of calculations; sectional drawings of the structure; room distribution plans; dock drawings; design drawings; drawings of the rig; accommodation plans; plans on stability; calculations on leakage; calculations on pump capacities and flooding valves; drawings of the mainframe, the frames at bow and stern and of the turrets; drawings of stem and stern with the rudders; steering, shafts and shaft brackets; drawings of the plating of the hull, the load line and the ship's bottom; drawings of the arrangement of armour plates and armour protection; detailed drawings of anchors, boats and associated tackle; masts; ammunition lifts; valves of fresh water tanks; ventilation plant; conning towers; means of communication; compass plans; magazines and ammunition transfer devices; fresh water supply; fuel oil bunkers; workshop drawings; the regulations for the construction of the ship; and finally the ship's technical diary (according to Evers' book, *Kriegsschiffbau [Warship building]*). The diary contains important information on the ship, including her stability, speed and manoeuvrability, and keeps a record of the ship's history with notes on voyages, damage, alterations and repairs. All this is complemented by valid regulations, standing orders and special orders. The engineering officer takes care of the plans, although a number are also given to the section leader in charge.

All drawings are made in 1:100 scale, although a number of highly-detailed plans are as large as 1:10 scale. Because of their size, such drawings cannot be used for general service on board even by the personnel working in the appropriate sections such as engine room staff or damage control parties. Consequently another version of these plans and drawings are drawn in 1:200 scale and are accompanied by sketch booklets. These booklets, individually prepared for a particular section, contain diagrams of all installations and machinery employed in this section so that every sailor can quickly be trained for work.

Normal crew training on board a new ship begins during the construction period, when a few members of the key personnel attend the construction to supervise the installation of machinery and become acquainted with it. After commissioning, the on-board training commences with instruction on individual stations, and concludes with a muster. Following this comes training at sea, including action stations, and only when these have been completed is the ship ready for action.

Every warship is, according to its size, divided into numbered rooms, which facilitate duty on board and enable the individual to find his way when this number is announced on the public address system. The numeric system is based on the room distribution plan.

All data contained in the room distribution plan can also be found in the sketch booklets, in the annexes of which are copies of the general plans and design drawings. On the following page are examples of such schematic sketches.

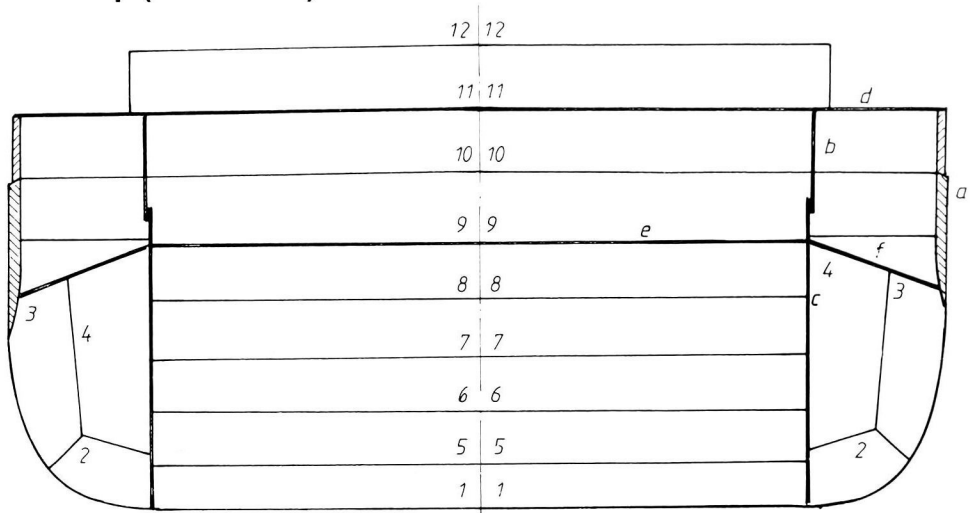
Key: Roman numeral - section; first Arabic numeral - deck; second Arabic numeral - position on that particular deck.

Sections are counted from stern to bows. All rooms to starboard are numbered with odd numbers, while those to port bear even numbers. The numbers of rooms situated in the middle begin with the numeral 9.

The most important documents issued upon a ship's commission are the operating manuals, handbooks and regulations issued by the manufacturers of the installations, powerplants, machinery, pumps etc. Prior to their issue, these documents are examined and approved by the navy and given the status of official technical regulations. While these documents are the responsibility of the engineer officer, the handbooks and manuals are given to the section commanders. They are indispensable working aids for servicing and maintenance, but also for ordering spare parts. The schematic sectional drawing of a 15cm turret (below) is an example for such precise drawings which are available for all components of the armament of the ship. The documentation for technical sections is quite similar. The extract from one of the manuals, shown on the following pages, refers to a diesel engine for one of the ship's generators.

Sectional drawing of a battleship (schematic)

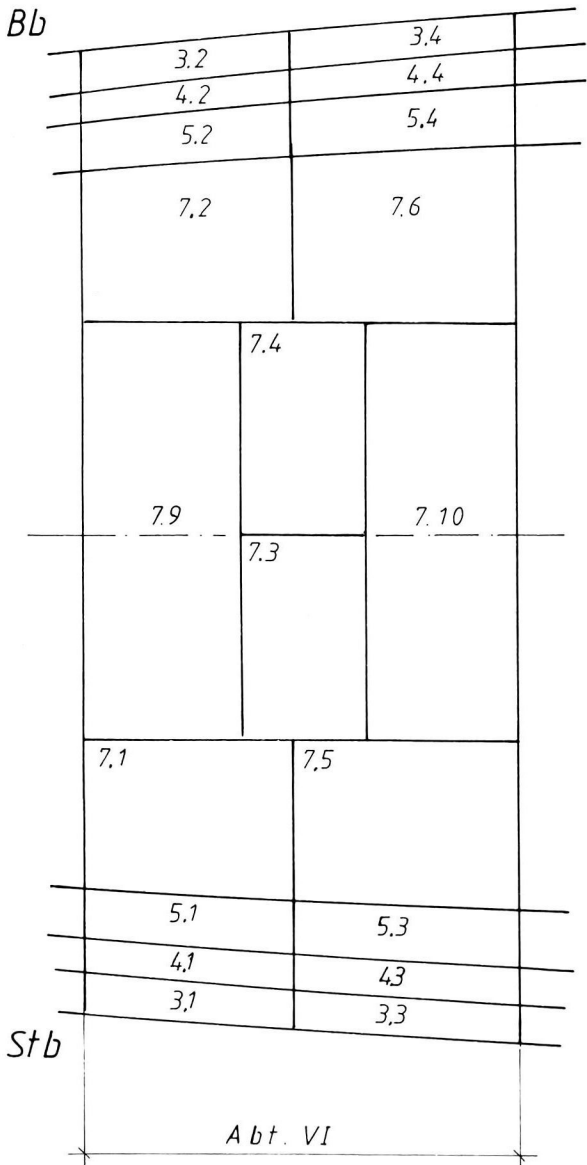
- a armour belt
- b splinter bulkhead
- c torpedo bulkhead
- d armoured upper deck
- e main deck (armour deck)
- f slope
- 1 double bottom 1
- 2 double bottom 2
- 3 outer terreplein
- 4 inner terreplein
- 5 stowing and lower platform deck
- 6 lower platform deck
- 7 upper platform deck
- 8 middle deck
- 9 main deck (armour deck)*
- 10 battery deck
- 11 upper deck
- 12 forecastle deck

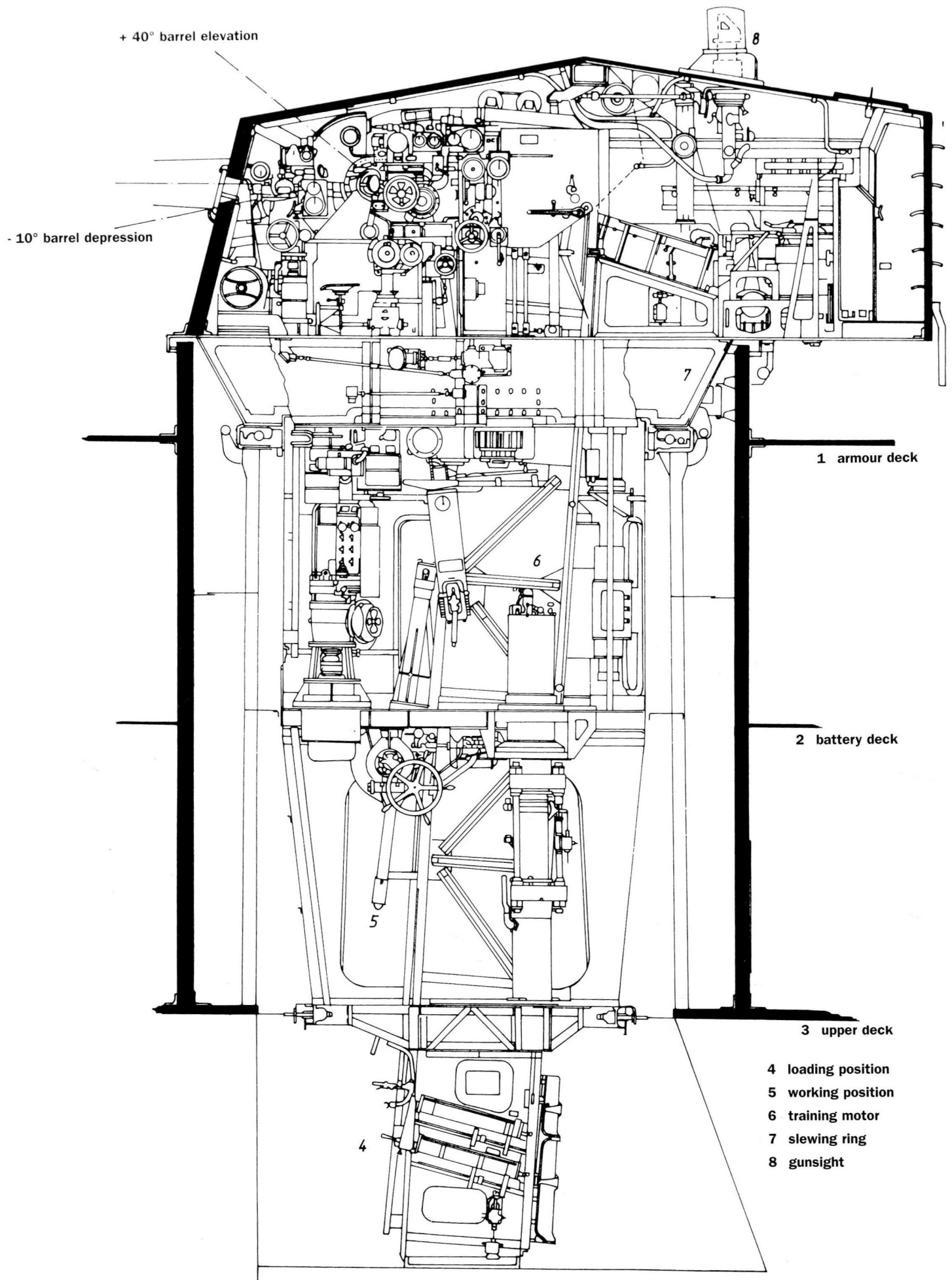


* On the *Bismarck*-class, the battery deck was also the armour deck.

Schematic room distribution within a compartment

Note:
In most cases, the stowing and the decks above are all in one room, for example the engine rooms, which can be several decks high.





Sectional drawing of a twin 15cm turret on mounting C34 with 15cm guns C28

Ausfertigung

Nur für den Dienstgebrauch

Beschreibung und Betriebsvorschrift

für den

Dieselmotor RS 38 S

der Firma

MOTOREN-WERKE MANNHEIM A.-G.
VORM. BENZ ABT. STAT. MOTORENBAU
MANNHEIM

auf

Baujahr 1940

Die Übereinstimmung der Beschreibung und Betriebsvorschrift mit der Bauausführung bescheinigt:

Kriegsmarinewerft

, den 19

Mannheiberbauart

Für die militärische Ausbildung und Betriebsführung
zugelassen:

Schiffsmaschineninspektion

, den 19

A. Bau- und Betriebsangaben

1

Beschreibung und Betriebsvorschrift

1. Bauangaben

A. Bau- und Betriebsangaben.

1. Bauangaben.

Hersteller des Dieselmotors:

Motorenwerke Mannheim A.-G.
vorm. Benz Abt. Stat. Motorenbau
Mannheim
Fernruf: Mannheim 54121
Drahtanschrift: Alterbenz Mannheim

Bauart des Dieselmotors:

RS 38 S

Hersteller des Generators:

Kreuzer „Seydlitz“	Schlachtschiff „Bismarck“	Schlachtschiff „Tirpitz“
A. E. G.	Garbe-Lahmeyer	Garbe-Lahmeyer
G 84/38	P 23 FA 925 10 Spez. B 2	P 23 FA 925 10 Spez. B 2

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A. E. G.	Garbe-Lahmeyer	Garbe-Lahmeyer
G 84/38	P 23 FA 925 10 Spez. B 2	P 23 FA 925 10 Spez. B 2

Baunummer:

Schiff:	Motor Nr.	Generator Nr.	Aufstellungsort im Schiff
Kreuzer „Seydlitz“	42 885	534 576	E Werk 1
Schlachtschiff „Bismarck“	170 093	377 071	WE Masch. R 1
Schlachtschiff „Tirpitz“	170 094	376 848	WE Masch. R 1

Werkstoffe wichtiger Teile:

Gegenstand:	Lieferer:	Baustoff:	Festigkeitswerte
Triebwerkgehäuse	MWM	Stg. 45 81 u. St. 37 21	
Zylinderblock	MWM	Ge 26 91	
Laufbüchse	MWM	Spez. Ge.	
Arbeitskolben	Karl Schmidt Neckarsulm	Spez. Al. leg. KS 1275	
Kolbenringe	Friedr. Goetze Burscheid	Spez. Gußeisen	
Treibstange	MWM	VM 125	
Kurbelwelle	MWM	S.M.St.	
Zylinderdeckel	MWM	Ge 26 91	
Anlaßluftleitung	MWM	Stahlrohr	

Bruchfest: 65 80 kg/mm²
Streckfestigkeit: 65 %
Dehnung: 22 %
Kerbstärke: 6 mm/kg/cm²
Bruchfest: 55 65 kg/mm²
Streckfest: 30 35 kg/mm²
Dehnung: 19 18 %
Kerbstärke: 4 mm/kg/cm²
(D. V. M. Versuch)

Werkstoffe wichtiger Teile

2

Beschreibung und Betriebsvorschrift

Gegenstand:	Lieferer:	Baustoff:	Festigkeitswerte
Treibölleitung	MWM	Stahlrohr	
Motorenölleitung	MWM	Stahlrohr	
Kühlwasserleitung	MWM	Kupferrohr	
Abgassammelleitung	MWM	Gußeisen	
Rohre für Motoren-Öelkühler	Gerberich & Cie. Mannheim	Al-Ms (F 40/KM)	

Gewichte:

Gegenstand:	Kreuzer „Seydlitz“	Schlachtschiff „Bismarck“	Schlachtschiff „Tirpitz“
1 vollständiger Dieselmotor	ca. 7 000 kg	ca. 6 750 kg	ca. 6 750 kg
Schwungrad	565 kg	230 kg	230 kg
Schwungradschutz	50 kg	35 kg	35 kg
Elastische Lagerung	950 kg	1 050 kg	1 050 kg
Anlaßluftbehälter vollständig	250 kg	250 kg	250 kg
Motorenölkühler	angebaut	260 kg	260 kg
Fundamentplatte	1 100 kg	1 465 kg	1 465 kg
Drehvorrichtung	33 kg	33 kg	33 kg
Generator	4 560 kg	7 360 kg	7 360 kg
Gesamtgewicht:	14 508 kg	17 433 kg	17 433 kg
Kühlwasser in Motor und Leitungen am Motor	250 kg	250 kg	250 kg
Motorenöl in Motor und Leitungen am Motor	80 kg	80 kg	80 kg

Diese Gewichte verstehen sich mit einem Spielraum von 5 v. Hundert.

A II. Hauptabmessungen

3

Beschreibung und Betriebsvorschrift

Arbeitszylinder:

Zylinderzahl: 6
Durchmesser des Zylinders: 300 mm
Hub des Kolbens: 380 mm
Durchmesser der Kurbelwelle: 200 mm
Hubvolumen der Maschine: 162 Ltr.

Zündfolge:

für Linksmotor linksdrehend: 1 - 5 - 3 - 6 - 2 - 4

Einspritzventil:

Hersteller: Bosch
Bezeichnung: Düse DN 6 TD 50
Düsenhalter: KB 50 T 45 b
Durchmesser der Düsenlöcher: 2 mm
Lochzahl der Düse: 1

Einlaßventil:

Anzahl je Zylinder: 2 Stück
Durchmesser: 93 mm
Hub: 22,5 mm

Auslaßventil:

Anzahl je Zylinder: 2 Stück
Durchmesser: 93 mm
Hub: 22,5 mm

Sicherheitsventil:

Anzahl je Zylinder: 1 Stück
Durchmesser: 8 mm
Hub: 8 mm

Anlaßventil:

Anzahl je Zylinder: 1 Stück
Durchmesser: 34 mm
Hub: 6 mm

Arbeitskolben:

Hersteller: Karl Schmidt, Neckarsulm
Durchmesser: 300 mm
Länge: 470 mm
Entfernung Mitte Bolzen bis Oberkante: 240 mm
Anzahl der Kolbenringe: 6 Stück
Anzahl der Öelabstreifringe: 1 Stück

Zylinderbüchse:

Länge: 810 mm

Lager:

Durchmesser	Länge
Hauptlager:	200 mm
Paßlager:	200 mm
Kurbelzapfenlager:	200 mm
Kolbenbolzenlager:	120 mm
	115 mm
	155 mm
	138 mm
	130 mm

	A III. Betriebsangaben			6
Beschreibung und Betriebsvorschrift				

A III Betriebsangaben:

Drehzahlen:

Schiff	Kreuzer „Seydlitz“	Schlachtschiff „Bismarck“	Schlachtschiff „Tirpitz“
Baunummer der Maschine	42 885	170 093	170 094
Betriebszahl bei Normal und Ueberlast n/min.	600	600	600
Sicherheitsregler stellt Maschine ab bei n/min.	ca. 660	ca. 660	ca. 660
entsprechend einer Reglerdrehzahl von n/min.	2900	3040	3040
kritisches Drehzahlgebiet je I von/bis n/min.	440/470	480/580	480/580
kritisches Drehzahlgebiet je II von/bis n/min	660/730	700/720	700/720
Schwingungsfrequenzen je I n/min.	4150	3200	3200

Betriebsdrücke:

Abspritzdruck des Einspritzventils:	etwa 110 atü
Verdichtungsdruck:	etwa 45 atü
Zünddruck:	etwa 60 atü
Abblasedruck des Sicherheitsventils im Zylinderdeckel:	80 atü
Anlaßluftbehälter, Höchstdruck:	60 atü
Zum Anlassen erforderlicher Mindestdruck:	12 atü
Motorenöl-Hochstdruck vor dem Filter:	bei 5,5 atü
Motorenöl-Hochstdruck hinter dem Filter:	wärmer 3,5 atü
Motorenöl-niedrigster Öldruck hinter dem Filter:	Maschine 1,5 atü
Motorenöl-höchster Öldruck vor dem Filter, bei kalter Maschine:	8,0 atü
Kühlwasser-Abblasedruck des Sicherheitsventils an der Pumpe:	5,0 atü

Probedrücke:

Kühlwasserraum im Zylinderblock:	6 atü
Kühlwasserraum im Zylinderdeckel:	15 atü
Anlaßluftbehälter:	90 atü

A III. Betriebsangaben

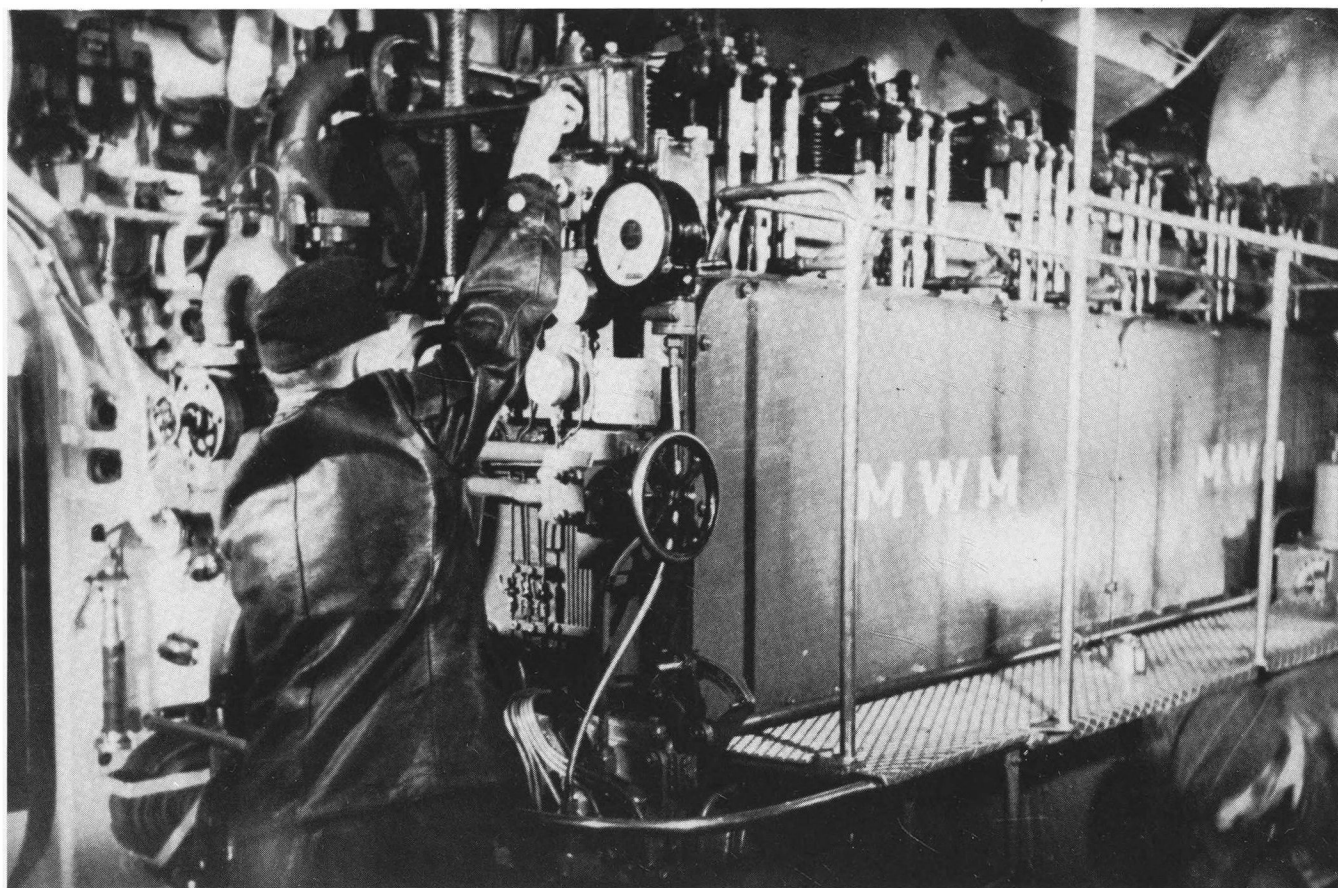
9

Beschreibung und
Betriebsvorschrift

A IV. Leistungsangaben:

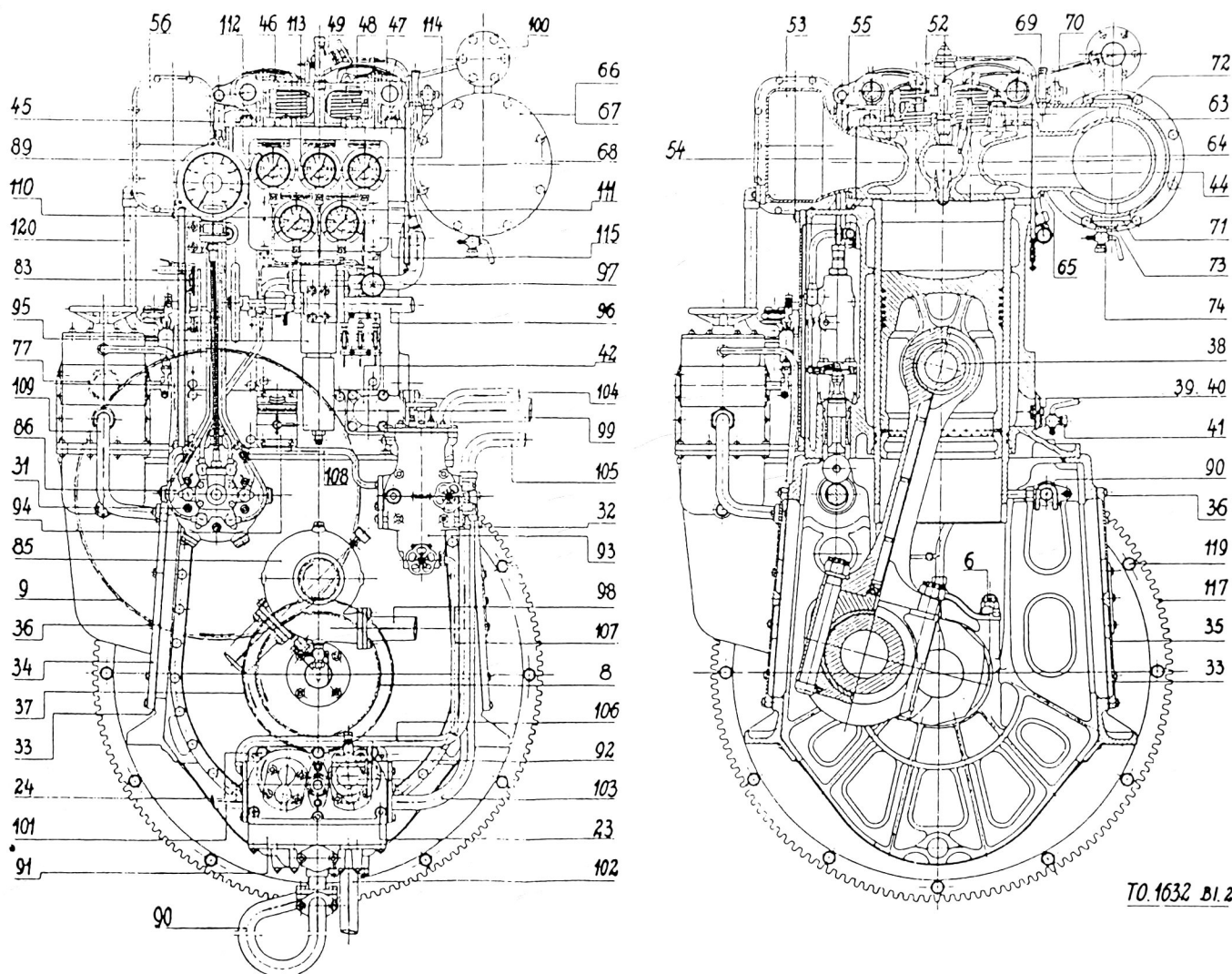
Schiff	Anzahl der Motoren	Motor-Nr	Normallast		20% Überlast Dauer 30 Min		mittl. effekt. Druck ps kg/cm ²	mittl. Kalorien Gehalt Ym m/s	Literleistung PSg/Ltr.
			n/min.	PSg	Drehzahl n/min.	Leistung PSg			
Kreuzer „Seydlitz“	1	42885	600	525	600	630	4,85	7,6	3,24
Schlachtschiff „Bismarck“	1	170093	600	460	600	550	4,25	7,6	2,84
Schlachtschiff „Tirpitz“	1	170094	600	460	600	550	4,25	7,6	2,84

Die auf dem Prüfstand der MWM erzielten für Leistung, mittleren effektiven Druck und die zugehörigen Abgastemperaturen sind für alle Belastungen auf dem anhängenden Schaubild Abb. 46 und 47 eingetragen.



A view of the diesel engine for one of the ship's generators.

Beschreibung und Betriebsvorschrift	Motorzusammenstellung Querschnitt des Motors und Ansicht auf Bedienungsstand nur für Schlachtschiff „Bismarck“ und „Tirpitz“	Abb. 1



T0.1632 Bl.2

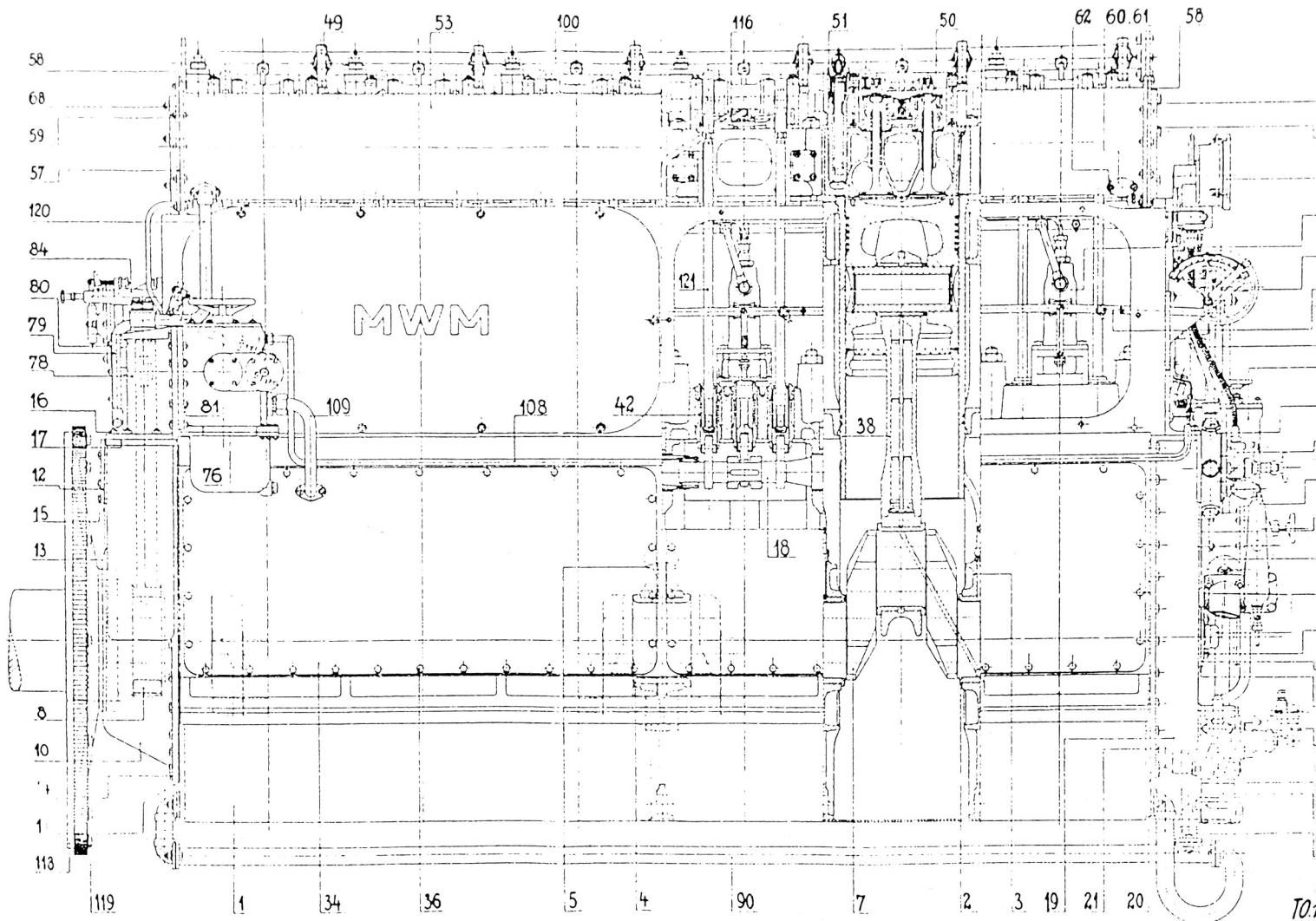
Sectional view of the motor and view of the operating panel for battleships *Bismarck* and *Tirpitz* only

- 6 studs with castle nuts, cotter pin and locking plate
- 8 two-piece spur gear, on crankshaft
- 9 spur gear on camshaft, see fig 14
- 23 hexagonal head nut and bolt
- 24 hexagonal bolt
- 31 collar bolt with hexagonal nut
- 32 collar bolt with hexagonal nut
- 33 gasket
- 34 cover
- 35 cover
- 36 hexagonal bolt
- 37 spur gear for oil pump drive
- 38 motor block, see fig 12
- 39 flange, zinc-protected, with gasket
- 40 hexagonal bolt
- 41 straight-way cock with gasket
- 42 water inlet manifold with gasket and hexagonal bolt
- 44 rocker cover
- 45 stud with hexagonal nut
- 46 valve rocker with block, see fig 16
- 47 stud with castle nut and cotter pin
- 49 indication valve with seals
- 52 injection valve, see fig 8
- 53 inlet manifold

- 54 gasket
- 55 hexagonal nut
- 56 blank-off flange
- 63 tail pipe
- 64 gasket
- 65 hexagonal bolt
- 66 round gasket
- 67 blank-off flange
- 68 hexagonal head nut and bolt
- 69 exhaust temperature indicator with gasket
- 70 sealing ring with pet cock
- 71 zinc-protected flange
- 72 gasket
- 73 hexagonal bolt
- 74 straight-way cock with gasket
- 77 governor drive gear
- 83 fuel shutdown device with indicator
- 85 coolant rotary pump, see fig 35
- 86 compressed starter-air distributor, see fig 27
- 89 tachometer
- 90 lubrication oil lines, see fig 30
- 91 oil pump, see fig 32
- 92 fuel pump, see fig 22
- 93 oil filter, see fig 32
- 94 heater plug switch
- 95 pressure reduction- and stop valve, see fig 26
- 96 starting air lines from compressed air cylinder
- 97 starting air lines, see fig 25
- 98 coolant lines to oil cooler

- 99 coolant lines from oil cooler
- 100 coolant collection line
- 101 pressure line of the oil pump to the oil reservoir
- 102 pressure line of the oil pump from the oil reservoir
- 103 from pump to oil filter
- 104 from oil filter to oil cooler
- 105 from oil cooler through oil filter to oil distribution line inside the motor block
- 106 engine oil overflow from oil regulation valve to oil supply line
- 107 sludge outlet
- 108 oil pressure line to hydraulic regulator
- 109 backflow line from hydraulic regulator to motor block
- 110 pressure gauge with line, for starting air pressure
- 111 pressure gauge with line, for pressure of compressed air cylinder
- 112 pressure gauge with line, for coolant
- 113 pressure gauge with line, in front of filter
- 114 pressure gauge with line, behind filter
- 115 pressure gauges panel
- 117 rack
- 119 hexagonal nut with locking plate
- 120 air vent tube

Beschreibung und Betriebsvorschrift	Motorzusammenstellung Längsansicht des Motors nur für Schlachtschiff „Bismarck“ und „Tirpitz“	Abb. 2



- | | | | | | |
|----|--|----|---|-----|---|
| 1 | motor housing | 26 | cover | 78 | regulator housing |
| 2 | main bearings | 27 | collar bolt with hexagonal nut | 79 | blank-off flange with gasket |
| 3 | bearing cover with lubrication nipple and gasket | 28 | castle nut | 80 | collar bolt with hexagonal nut |
| 4 | bearing shells | 29 | collar bolt with hexagonal nut | 81 | hexagonal nut and bolt |
| 5 | bearing cover with lubrication nipple and gasket | 30 | O-ring seal | 82 | governor control linkage, see fig 20 |
| 6 | studs with castle nuts, cotter pin and locking plate | 32 | collar bolt with hexagonal nut | 83 | fuel cut-off with indicator |
| 7 | crankshaft | 34 | cover | 84 | safety regulator, see fig 19 |
| 8 | two-piece spur gear, on crankshaft | 36 | hexagonal bolt | 85 | coolant rotary pump, see fig 35 |
| 9 | spur gear on camshaft, see fig 14 | 38 | motor block, see fig 12 | 86 | compressed starter-air distributor, see fig 27 |
| 10 | front cover | 42 | water inlet manifold with gasket and hexagonal bolt | 87 | tachometer drive gear, see fig 40 |
| 11 | gasket | 49 | indicator valve with seals | 88 | flexible shaft |
| 12 | cover | 50 | inlet- and outlet valve, see fig 6 | 89 | tachometer |
| 13 | gasket | 51 | starter valve, see fig 10 | 90 | motor oil line, see fig 30 |
| 14 | hexagonal bolt | 53 | intake pipe | 91 | oil pump, see fig 32 |
| 15 | hexagonal bolt | 56 | blank-off flange | 92 | fuel pump, see fig 22 |
| 16 | studs with castle nut | 57 | connecting flange | 93 | oil filter, see fig 31 |
| 17 | gasket | 58 | gasket | 100 | coolant collection line, see fig 36 |
| 18 | camshaft, complete, see fig 14 | 59 | hexagonal nut and bolt | 108 | pressure line to hydraulic regulator |
| 19 | front cover | 60 | oval blank-off flange | 109 | pressure line from hydraulic regulator to motor housing |
| 20 | gasket | 61 | oval gasket | 116 | fuel supply line |
| 21 | hexagonal bolt | 62 | collar bolt with hexagonal nut | 117 | rack |
| 22 | gasket | 68 | hexagonal nut and bolt | 119 | hexagonal nut with locking plate |
| 23 | hexagonal nut and bolt | 75 | fuel injection pump, see fig 24 | 120 | air vent tube |
| 25 | O-ring seal | 76 | hydraulic regulator, see fig 17 | | |

Detailed plans of the ship's large diesel engines from the original engineer's manual.

Career notes

1936: 2 November, ship's keel laid at the *Kriegsmarinewerft*, Wilhelmshaven .

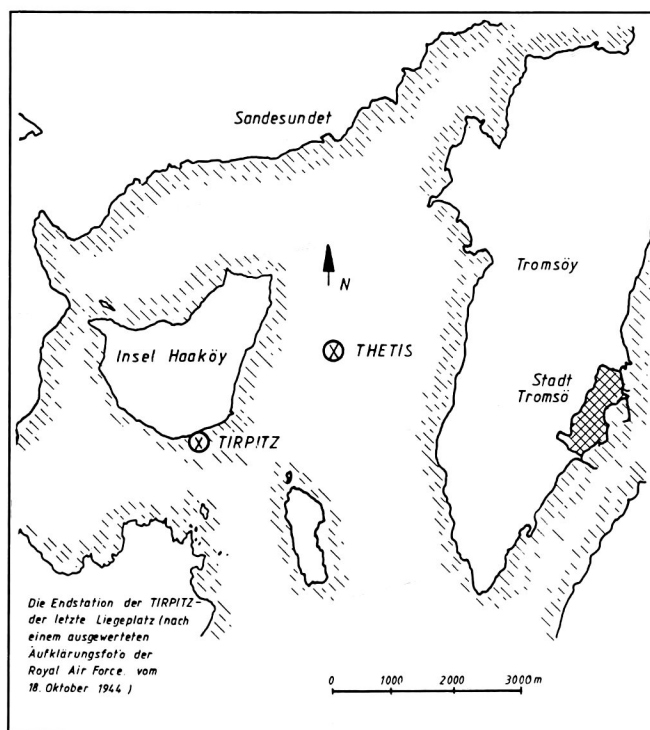
1939: 1 April, launch.

1941: 25 February, *Tirpitz* commissioned. After acceptance trials in March, she transferred to the Baltic Sea. Working-up periods at Kiel and Gotenhafen, accelerated training of the crew and trials in order to provide full action readiness. As this could not be achieved before mid-May 1941 her planned participation in Operation Rheinübung was not realized. In September she had a brief employment with the *Baltenflotte* 'Baltic fleet'.

1942: Returned to the North Sea in mid-January, final fitting at Wilhelmshaven-Reede and transferred to Norway. In March she took part in an unsuccessful operation against allied convoys, during which she was exposed to permanent Allied air attacks. Her main berths were the Faettenfjord near Drontheim and the Altafjord. In July there was a further attempt to attack convoys but *Tirpitz* was then transferred to a new berth in the Bogen bay near Narvik. Returned to Faettenfjord for repairs in the shipyard.

1943: Returned to Bogen Bay and then to Kaafjord. In September she was part of Operation Sizilien, the bombardment of Spitzbergen. This was the only time she fired her heavy artillery in anger, even though it was not during an action at sea. In the same month the British managed to attack the ship with miniature submarines which put her out of action for some time.

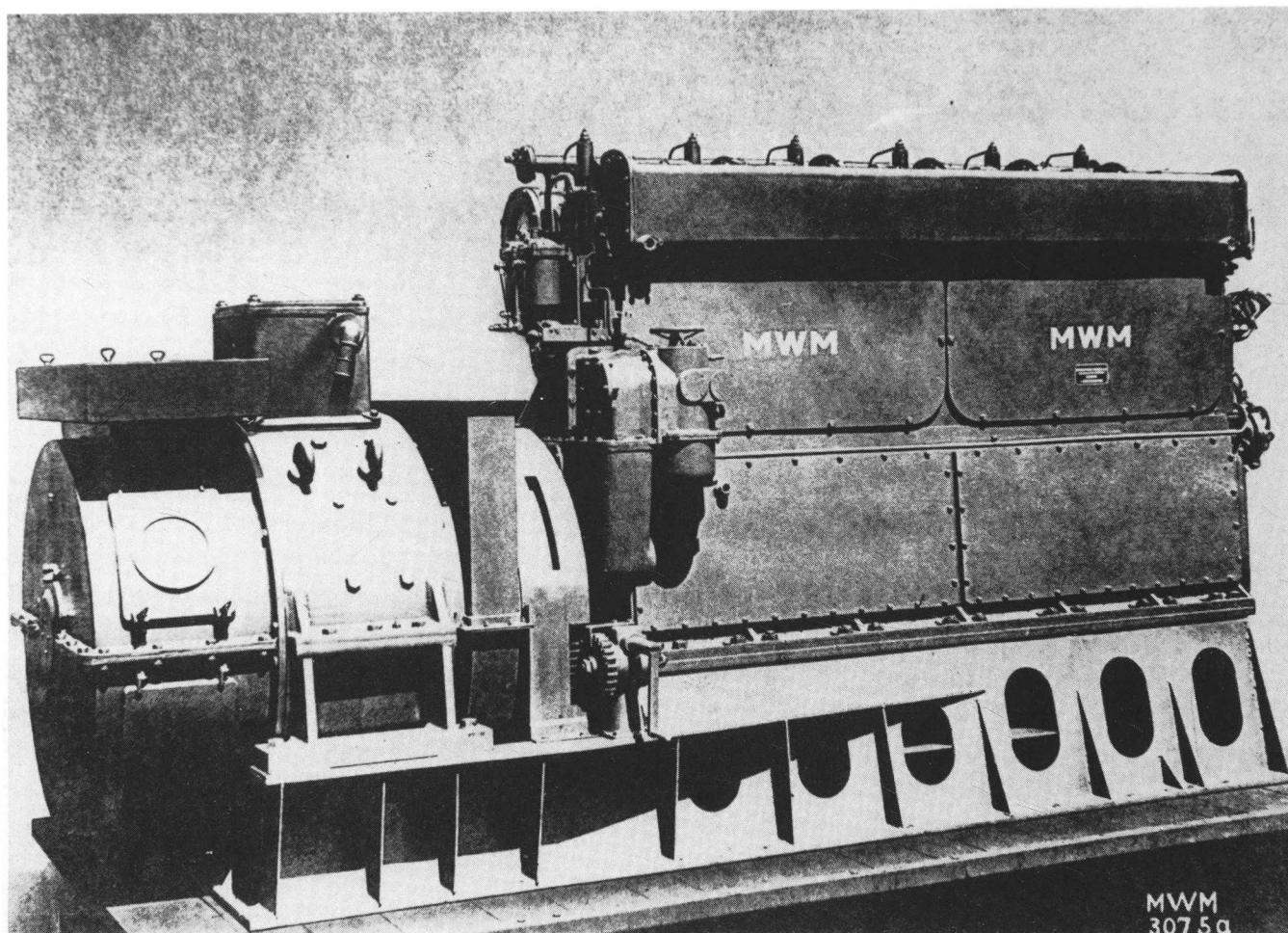
1944: This year was marked by enforced Allied efforts to put the ship out of action by incessant air attacks. Beginning in April, these attacks were continuously launched, but many sorties had to be aborted or cancelled due to rapidly changing weather conditions. They were, however, not without results. On 3 April there was a first successful heavy attack, and another attack on 15 September caused so much damage that she was no longer seaworthy. *Tirpitz* was ordered to transfer to Tromsø, where she was to remain as a floating battery. Another air attack on 29 October caused serious damage, and then, on 12 November, came the end. Hit by superheavy bombs, the ship capsized, with over 1,200 men lost.



The site where *Tirpitz* capsized.

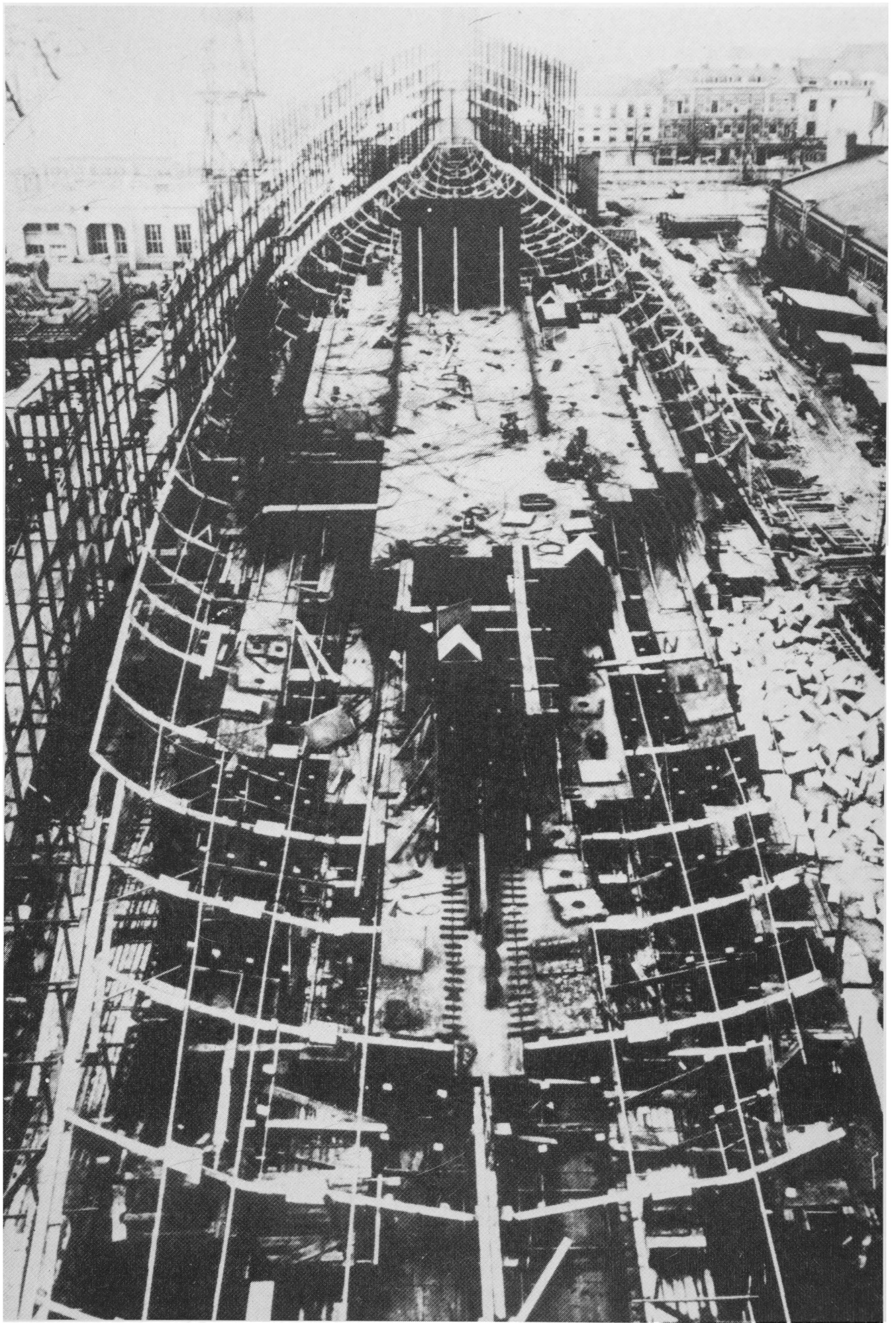


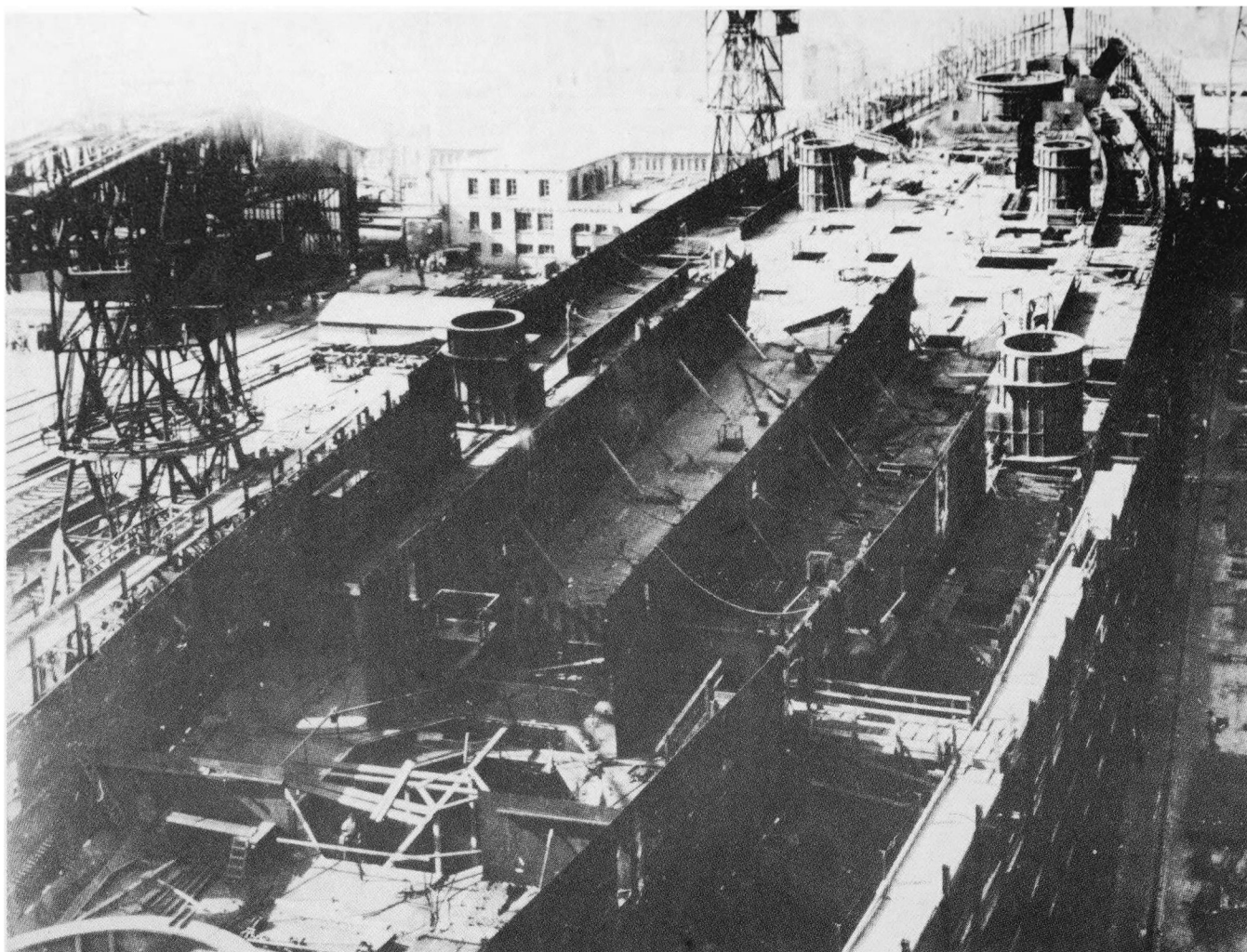
The wreck of *Tirpitz*, after the first attempts of breaking up the ship. In the foreground one of the mighty craters caused by the air attack can be seen.



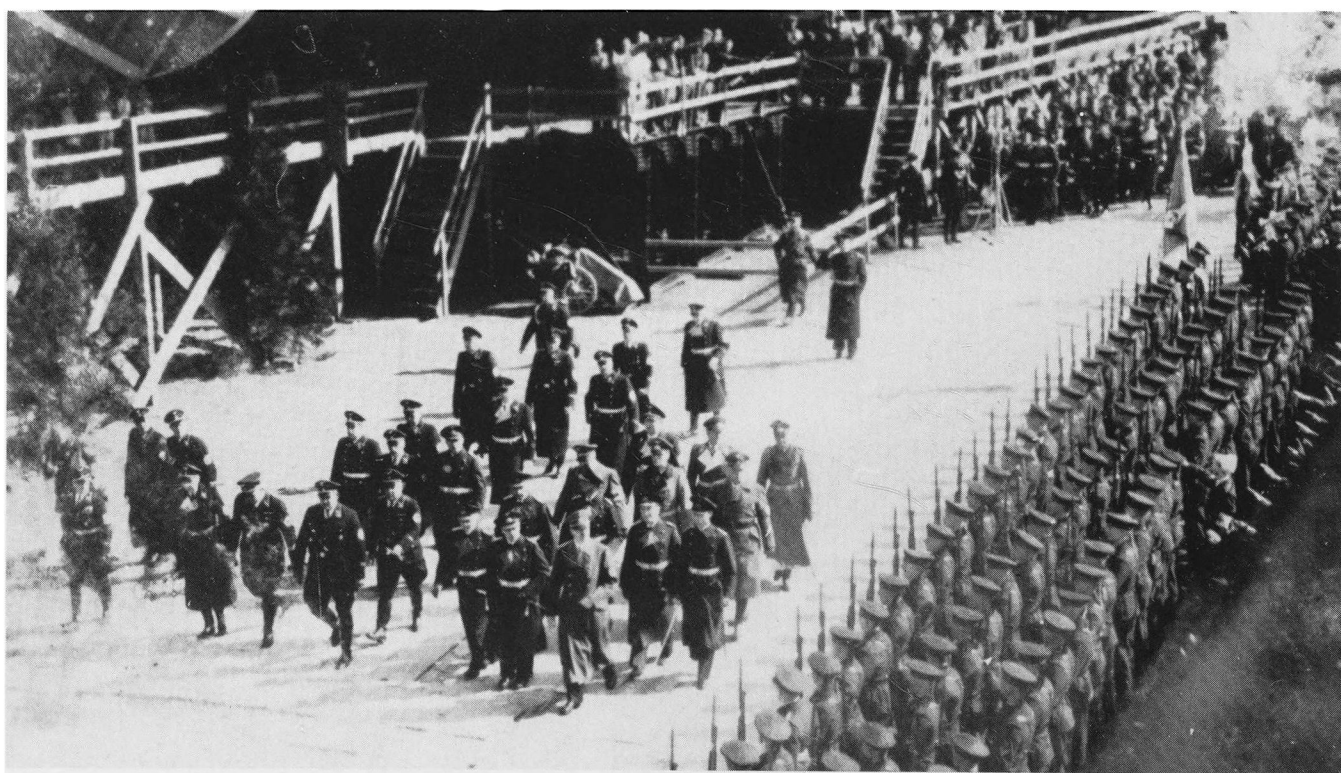
This photograph shows a diesel engine of the RS 38S type which was used on both *Tirpitz* and *Bismarck*. A twelve-cylinder variant with the designation RS 38Zw, based on this engine, was later employed in submarines of the XI-class.

►
An aerial view of building slip 2 of the *Kriegsmarinewerft* 'Navy shipyard' in Wilhelmshaven. The hull of the new battleship is still under construction. Note the many transverse frames and the bulkheads which have already been fitted. On the right and left the stagings can be seen.



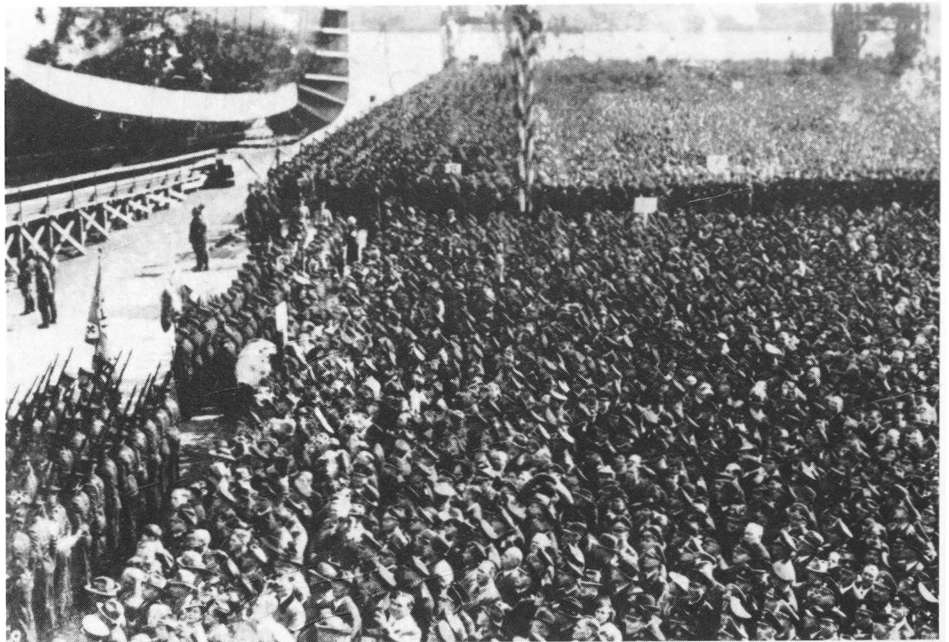


A starboard view of the ship under construction. The armour deck has been completed, and the cylindrical supports of the barbettes for the 15cm turrets and of 38cm turret A have also been installed.

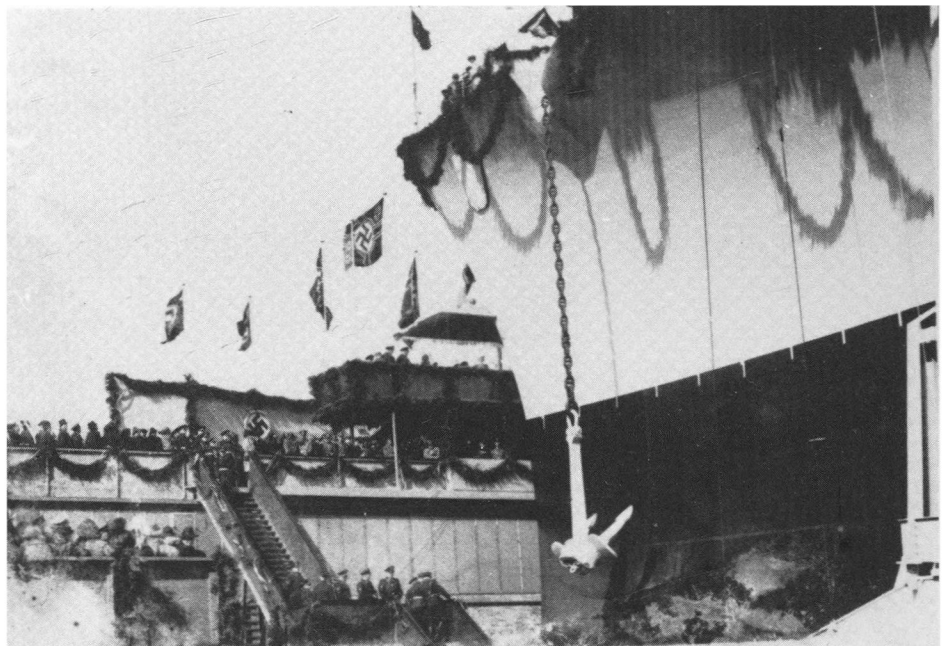


The launch of *Tirpitz* on 1 April 1939. Hitler and his companions pass the guard of honour on their way to the platform.

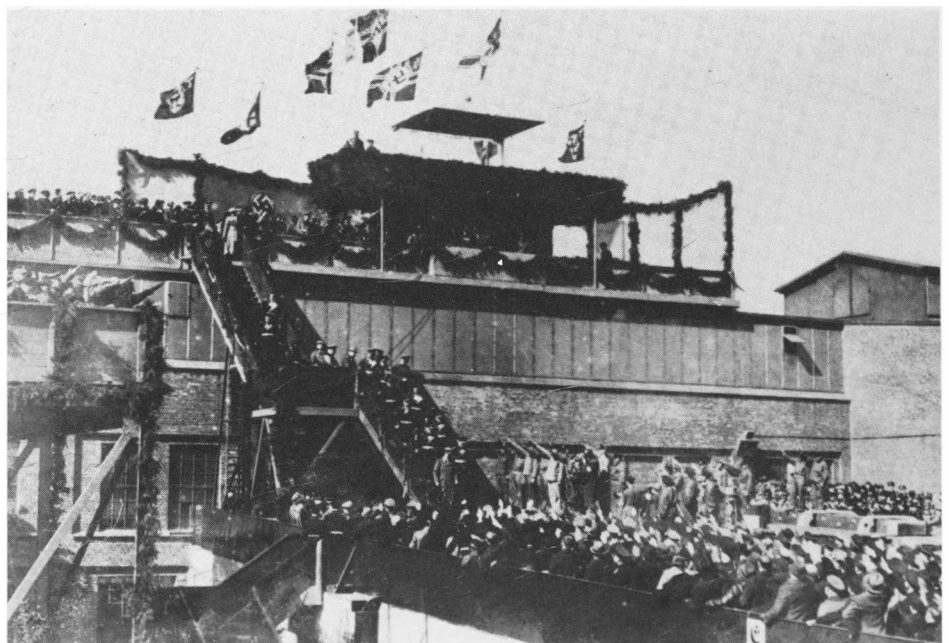
As can be seen here a large number of spectators attended the launch.

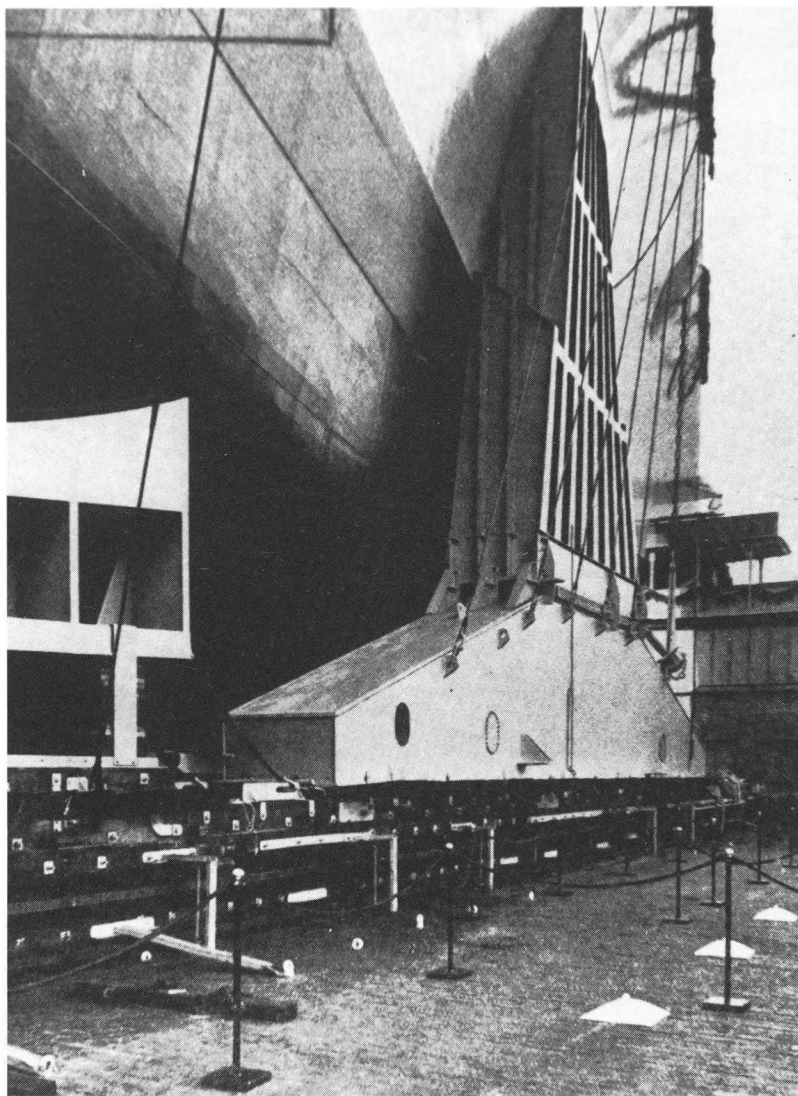


The new ship just before the naming ceremony. Seen at the port bow is one of the anchors intended to stop the ship after the launch and to turn her out of the launching direction.

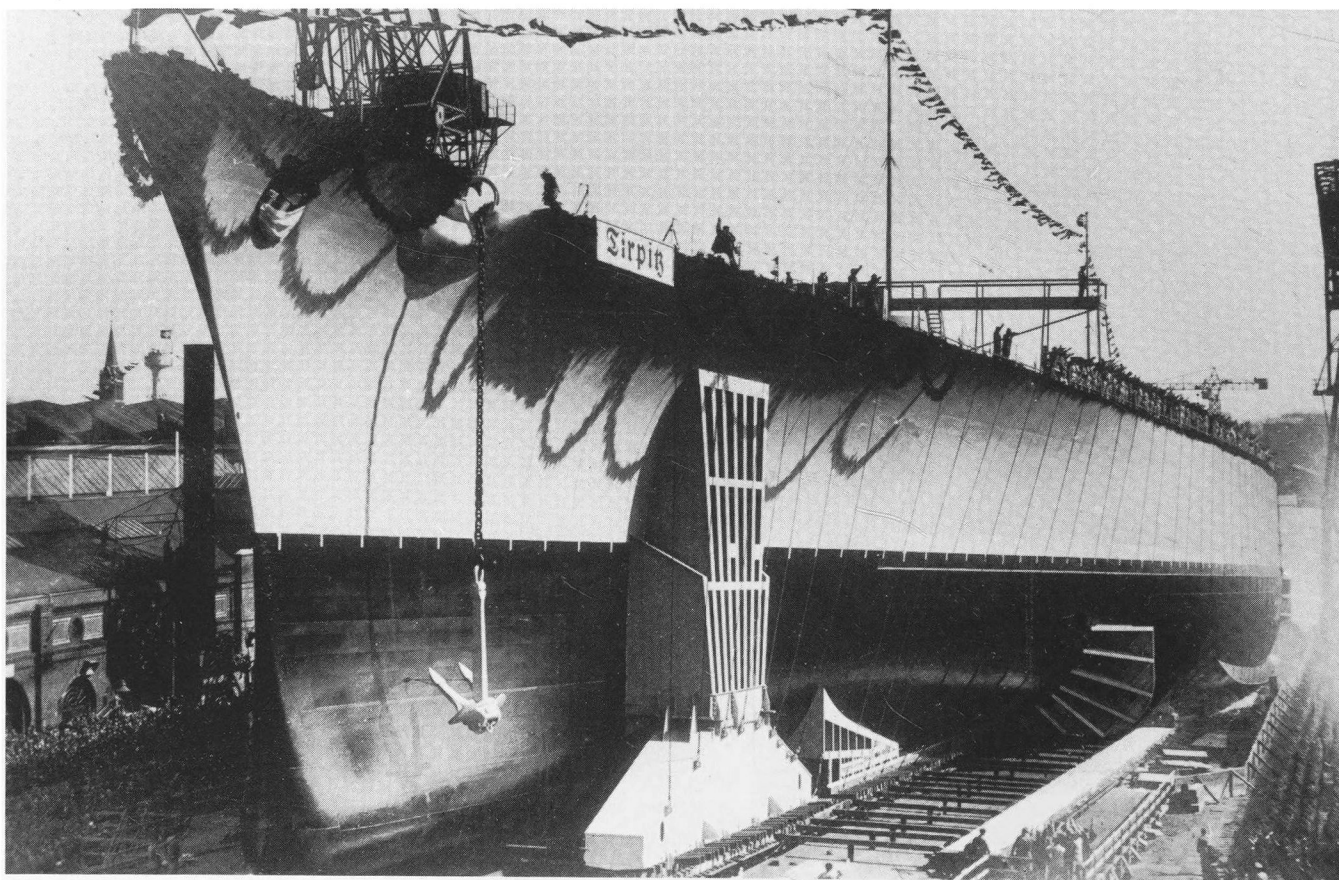


After the naming ceremony, the guests leave the tribune.





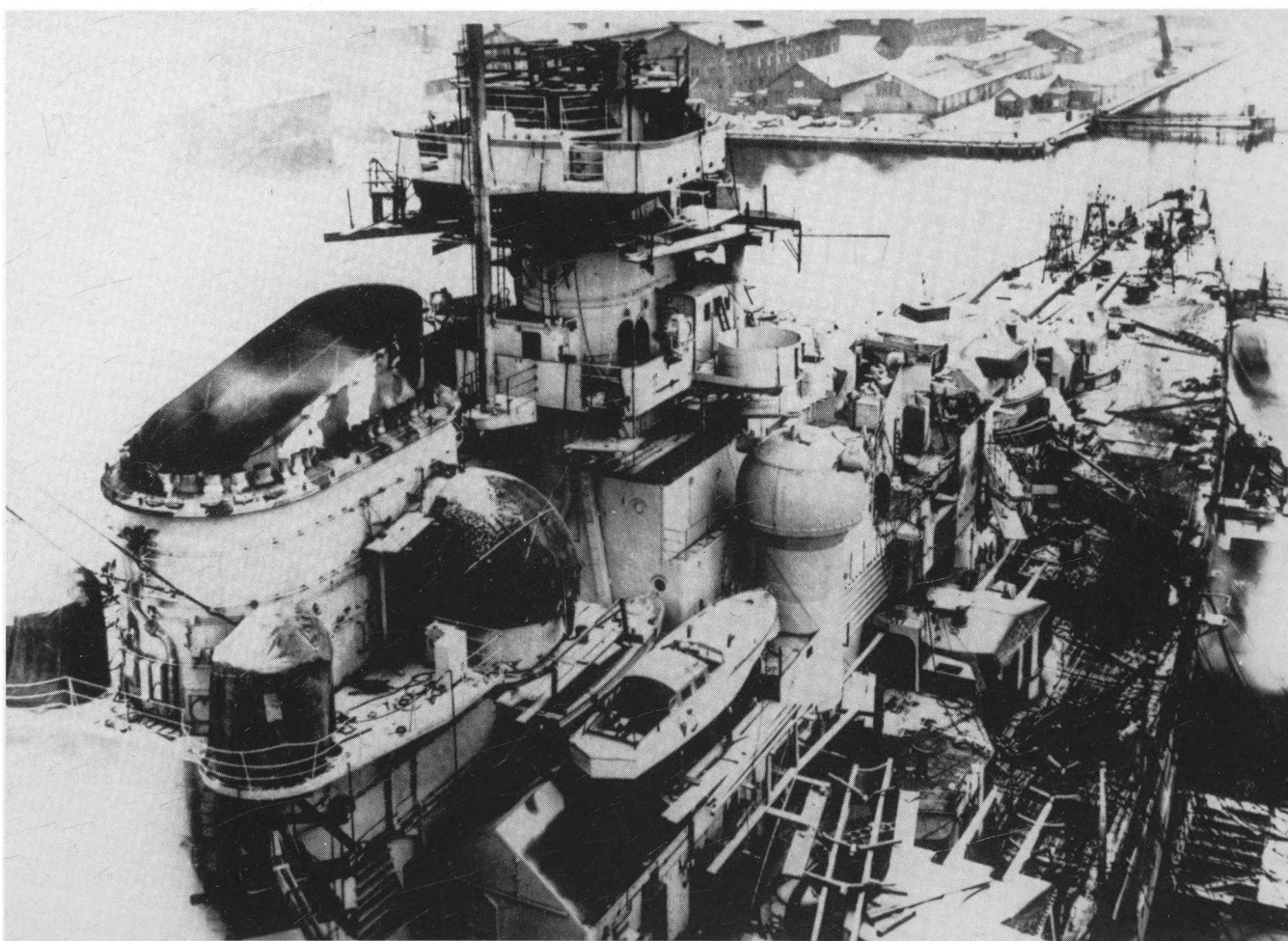
A photo of *Tirpitz* prior to her launch which affords a good view of the tilting sledge and the front console.



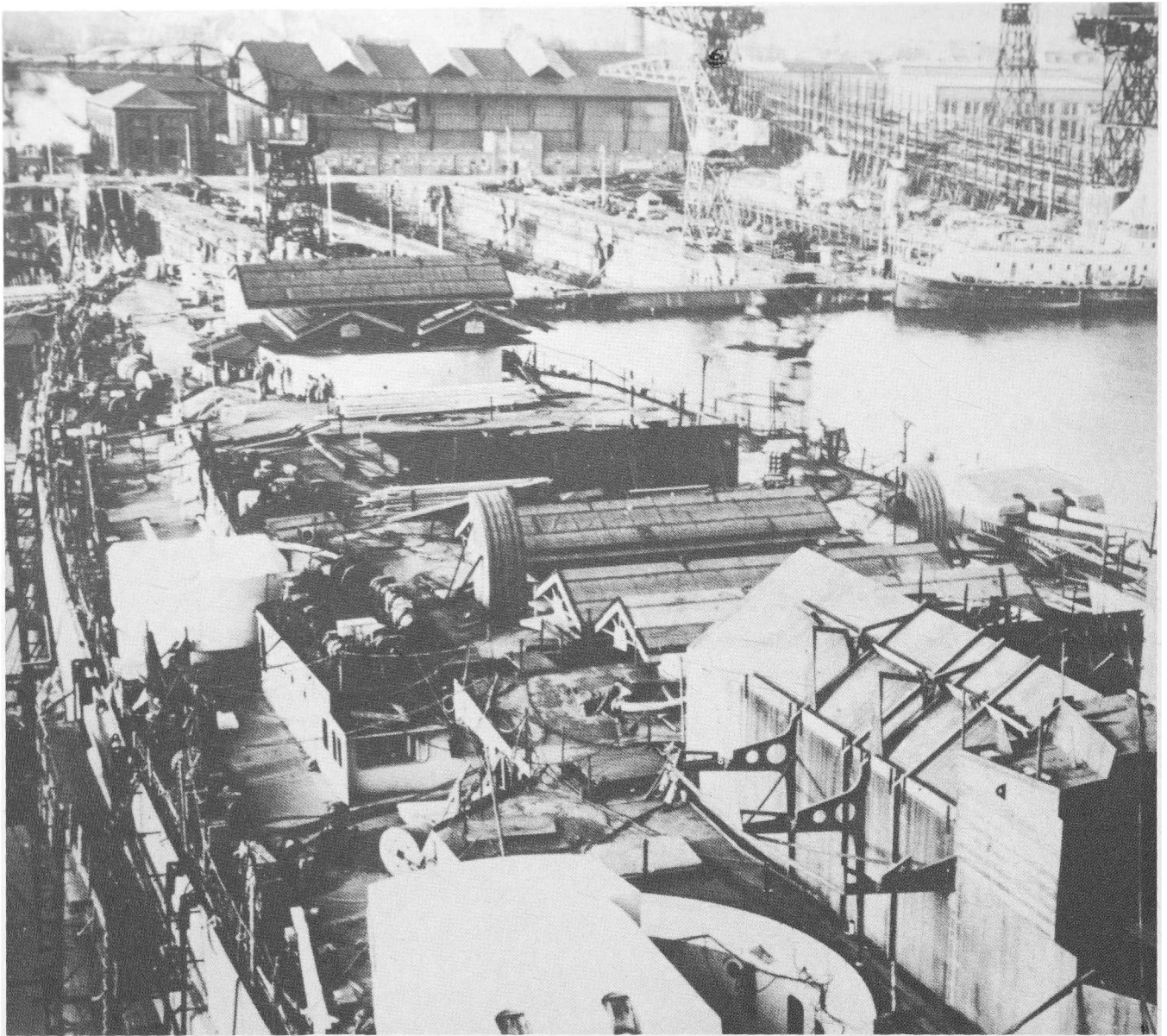
The massive hull slips slowly into the water affording a good view of the front anchor and large brake shields.



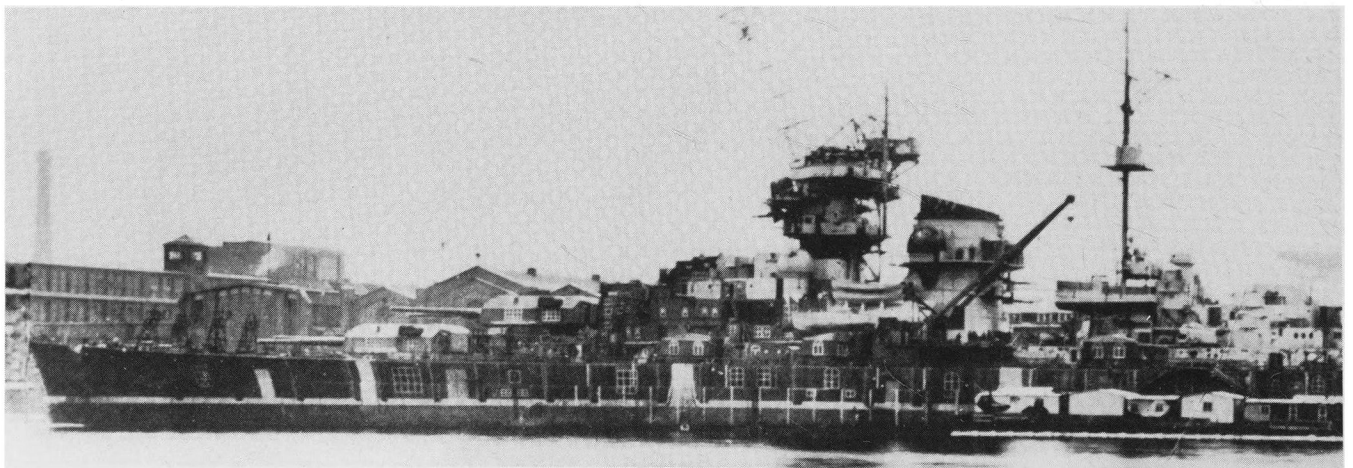
The hull has now been turned around and tugged to the Bauhafen-basin, where she is moored near the drydocks IV, V and VI. The battleship *Scharnhorst* is moored at the eastern quay.



Taken in the winter of 1940/41, this photograph shows *Tirpitz* on the southern quay of the Navy shipyard during the working-up period. The funnel and bridge tower have been completed although some of the platforms are still under construction. The searchlights have already been fitted to the funnel platform, and to the right of the bridge tower, the fore AA-artillery director control tower can be seen. The boats are already on board. The turrets of her main and secondary armament are complete and the twin mountings of the 10.5cm AA guns have been fitted.

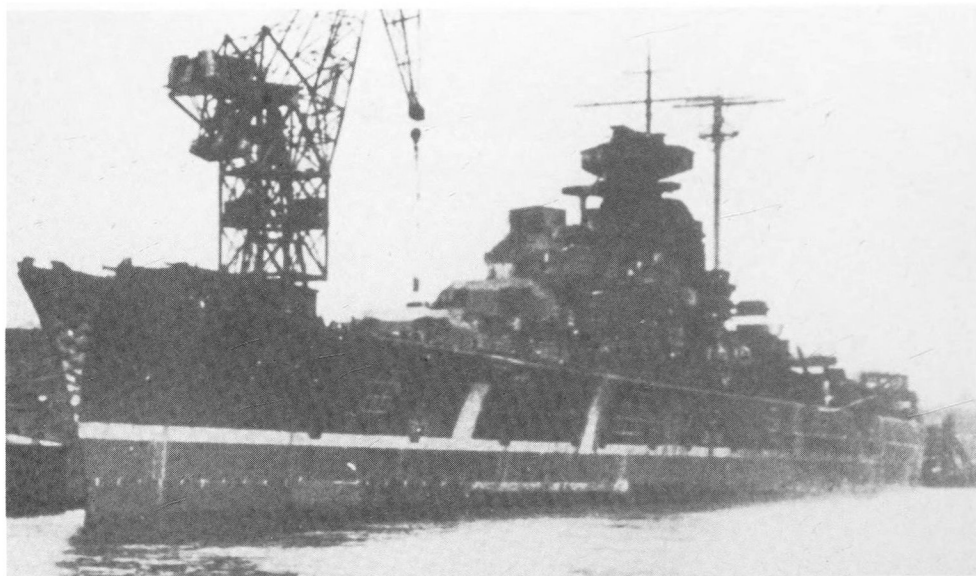


Tirpitz during the fitting-out period, in 1940. The two 15cm turrets Stb II and Stb III can be seen, the latter still missing its rangefinder. The starboard hangar on its right is still under construction and on the after deck many covered openings can be seen, including the barbettes for the turrets C and D. Premanufactured barrings for the ship's boats have been fitted to the side of the hangar. In the background are slips I and II, and dry docks I, II and III on which a large new construction can be seen (probably the light cruiser *N* which was later broken up).



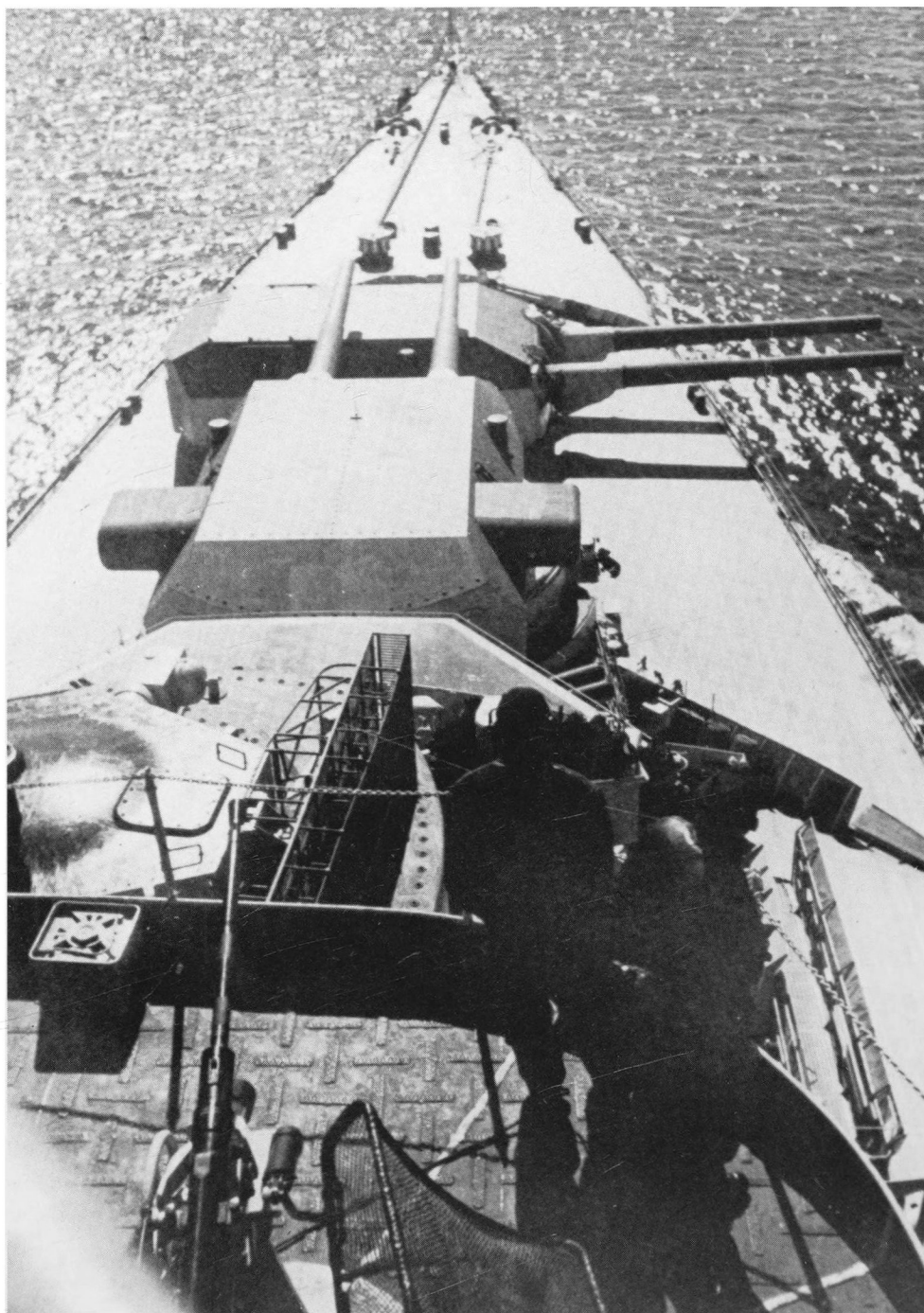
Tirpitz during her fitting-out period, moored at the eastern quay of the construction harbour. Note the camouflage pattern which resembles wooden shacks with windows.

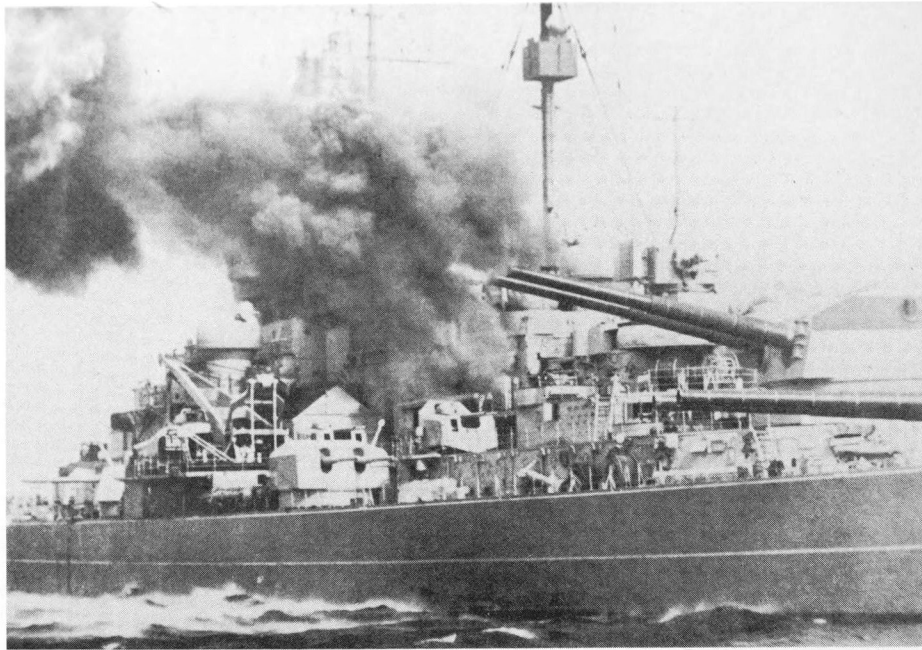
Another view of the ship from a different angle. The paintwork on the ship seems to be quite realistic.



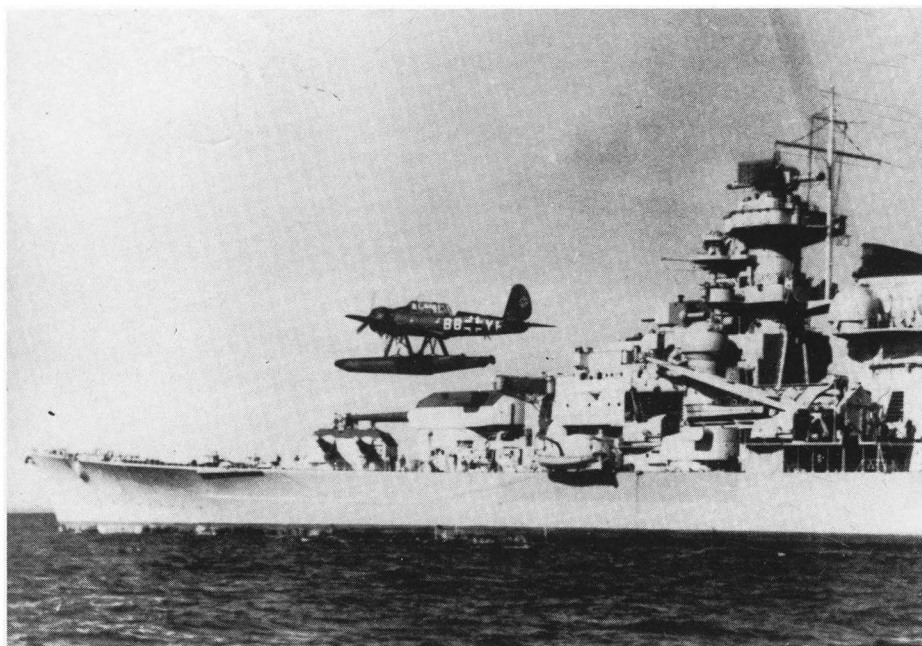
View from the bridge onto the forecastle. Turret A has been trained to starboard, while turret B is still in its basic position. On the platform in the foreground, one of the many single 2cm AA guns is visible.

The fore armoured conning tower can be seen on the front part of the bridge superstructure. Its revolving hood with the 7m base rangefinder and the aerial of the radar set FuMO 23 attached to it has also been trained to starboard. This photograph dates from the summer of 1941.

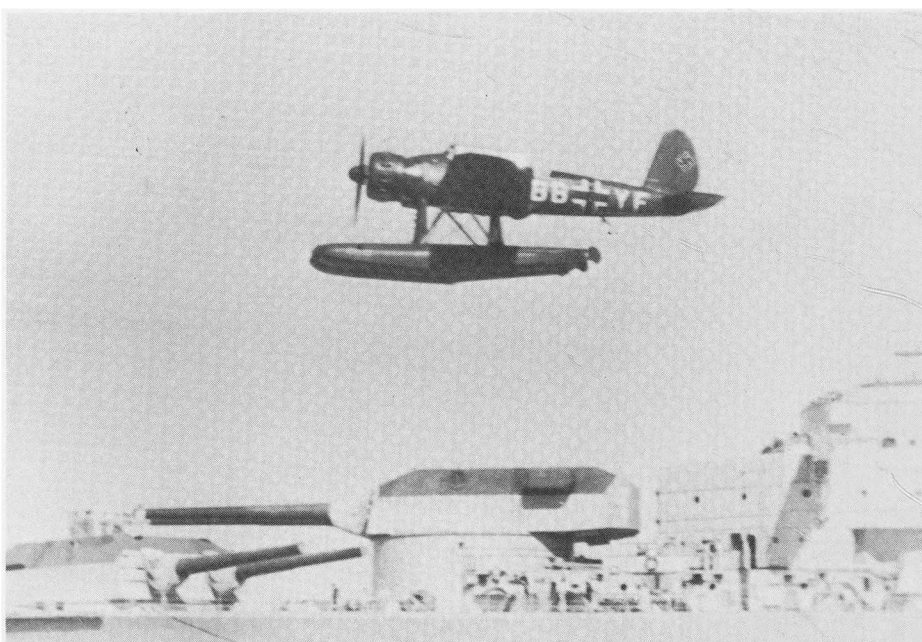




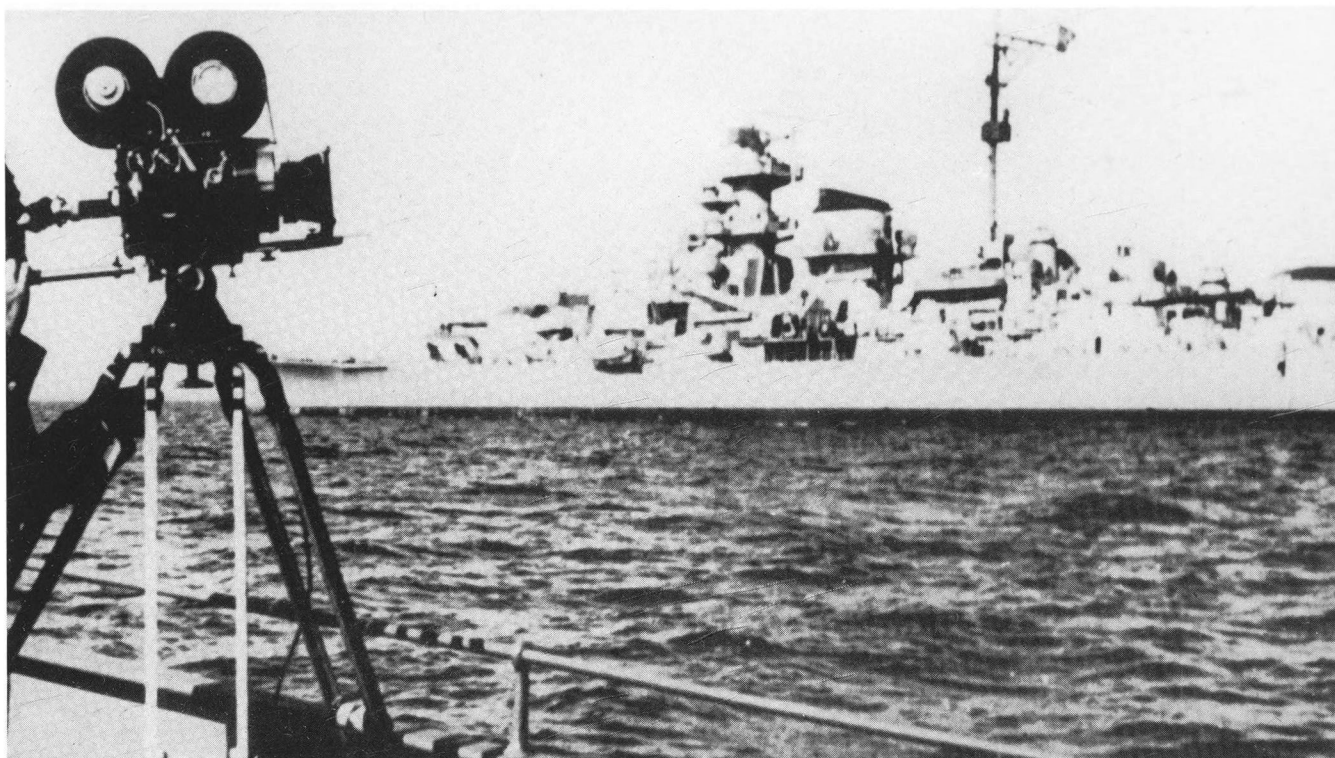
Tirpitz in the Baltic, November 1941. Turret C has just fired a salvo, thick fumes cover parts of the ship.



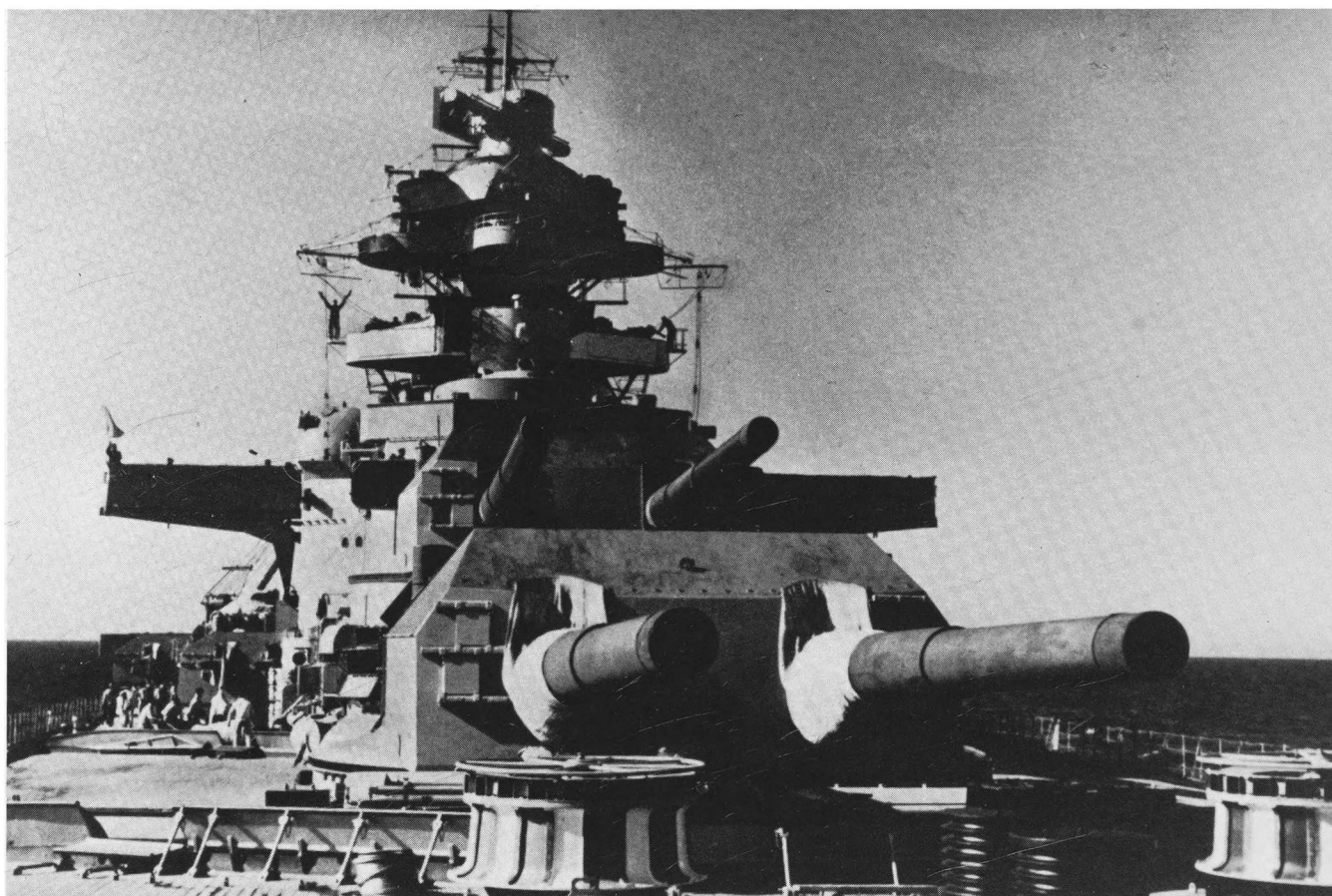
Tirpitz in the Baltic, Summer 1941. At this time, many propaganda films or photographs were taken. This was either done with a camera on board the ship or, as shown here, with the camera in one of the ship's aircraft which then circled the ship. Turret A has been trained to starboard.



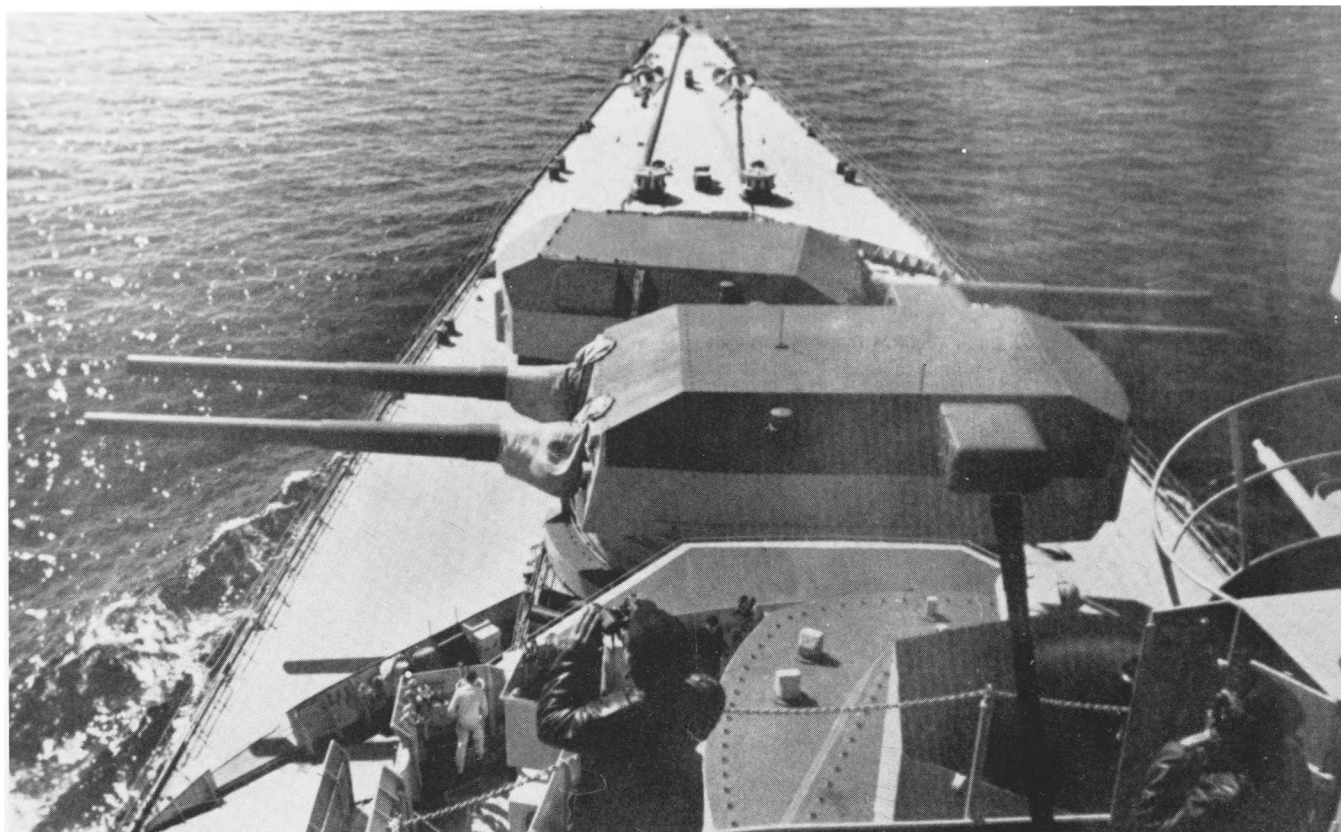
The Arado Ar 196 during the shooting. Turret A has again been trained to starboard; on its roof and on the upper deck many spectators can be seen.



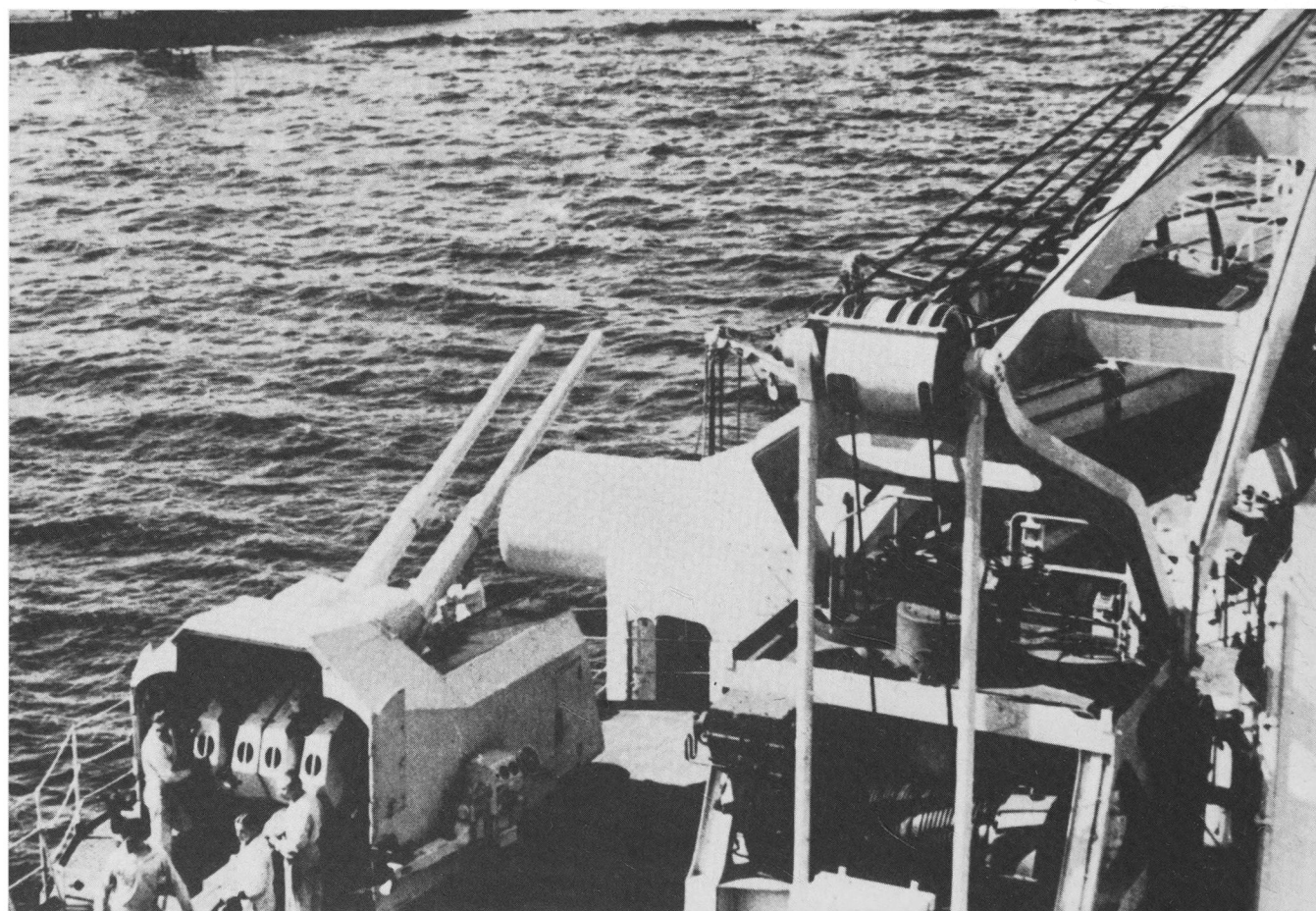
Here, one of the cameramen can be seen operating his camera on a tripod placed in one of the boats.



Tirpitz in the Baltic in 1941, a view from her bows. In the foreground are the two heavy 38cm turrets A and B with capstans in front. Note that the barrel ports on the front of the turrets have been closed with canvas hoods to protect the turrets from spray and water. This was important as water inside the turret could cause malfunctions. The wings of the bridge have been folded down and the revolving hoods on the conning tower and foretop have been turned aft. This was common practice in order to hide certain parts of the ship from view; here the large radar aerials are being hidden.



A view of the forecastle. Turret A has been trained to starboard, while turret B has been trained to port. Note that turret A is not equipped with a rangefinder. As the gun ports in the turrets are covered with canvas bags the action shown here is possibly normal training or maintenance.



Meeting with a submarine of the II class. The port aircraft crane, one of the 10.5cm AA guns and also the 15cm turret Bb II with its 6.5m base rangefinder are all visible.

The Baltic in 1941, gymnastics at the bar. Physical training was taken very seriously in the German Navy, and there were many different kinds of sports, although the wearing of appropriate attire was of secondary importance.

The Baltic in 1941 with 15cm turrets Stb I and II visible. The ship's band is playing as part of leisure time on board.

There were precise regulations for leisure time both in peace and wartime, particularly as far as the ship's upper deck was concerned: there were separate areas for the different ranks. All regulations were laid down in the M D V Nr49 (regulations for the navy), D a B *Dienst an Bord* 'Service on Board', volume II, derived from the former *Instruktionen for den Commandanten eines Seiner Majestät Schiffes oder Fahrzeuges* 'Instructions for the Commandant of one of His Majesty's Ships or Vessels', dated 1852 and 1853, 1872 and 1877. Further revised and modernised versions were published in 1894, 1903, 1909, 1925 and 1937.

The D a B consisted of five volumes:

I: Rights and duties of the ship's commandant, regulations for the ship's officers and regulations for ensigns, petty officers etc.

II: Service on board.

III: Regulations for guard and security duties.

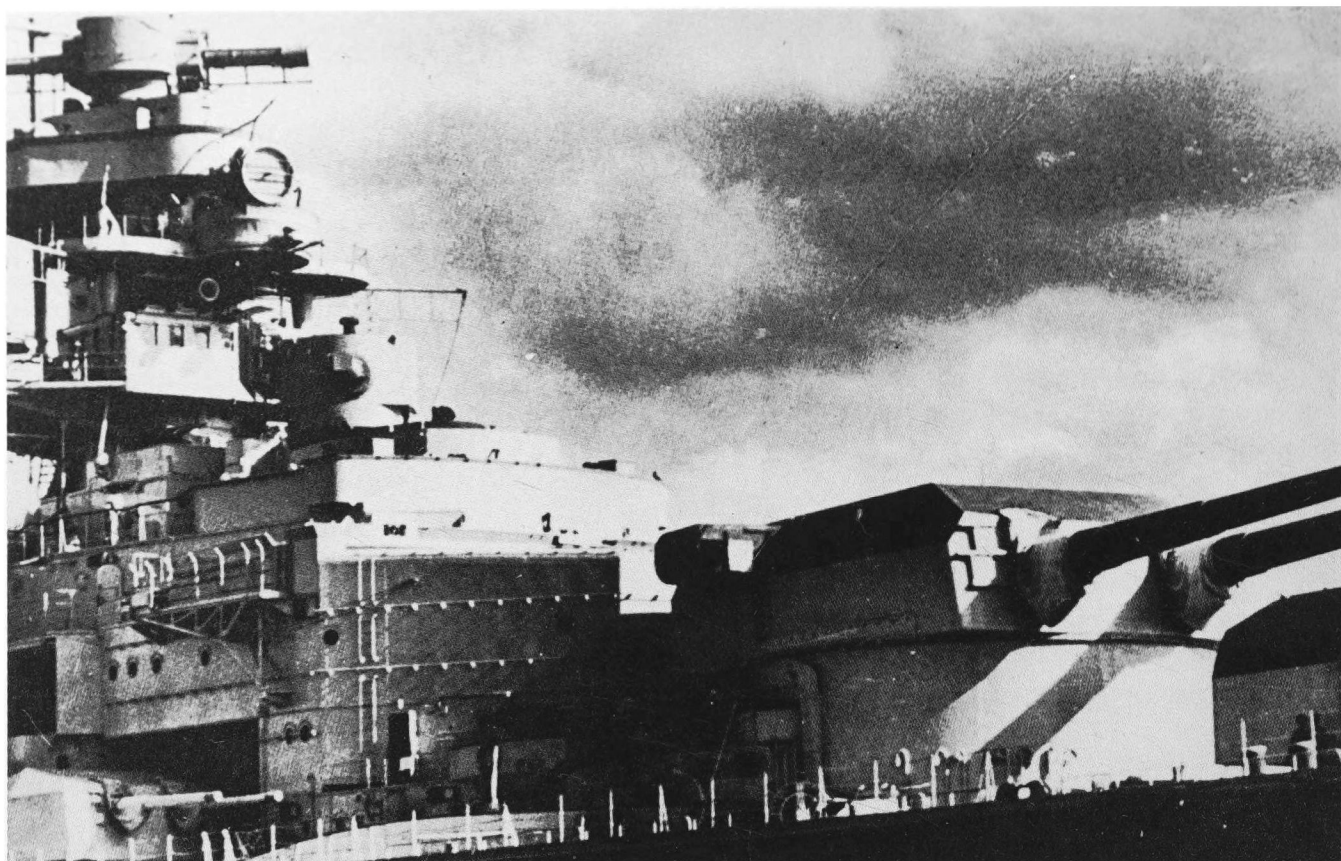
IV: Regulations for the employment of the ship such as orders for the conduct of the ship, for sailing in foreign waters, for the political activities of the commandants of German ships abroad, and for the relations between warships and merchant ships in times of war and peace.

V: Regulations for the commissioning and the service of the ship, her equipment, paying-off of the ship and for changes of command or changes of the crew.

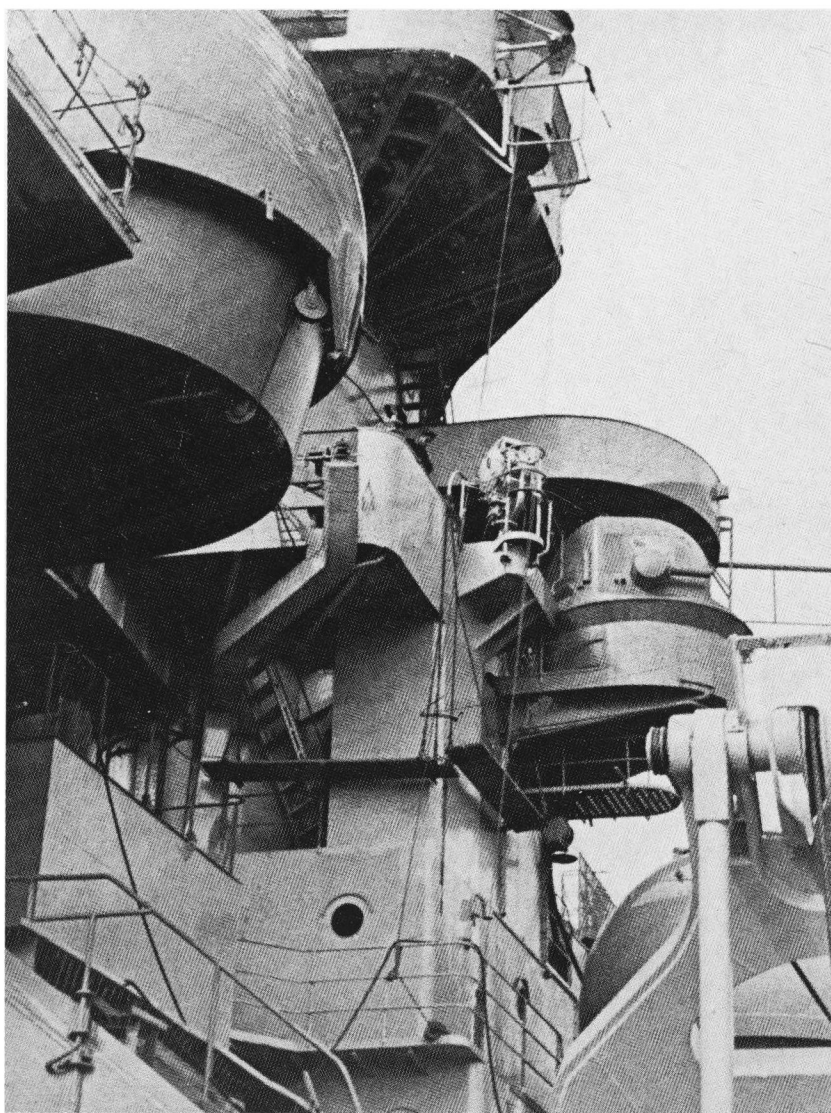
There were special regulations for subjects such as tactics, organisation, administration, weapons, machinery and health care.

The Baltic in 1941, training of the ship's crew. Here the sailors are seen doing anchor drill.

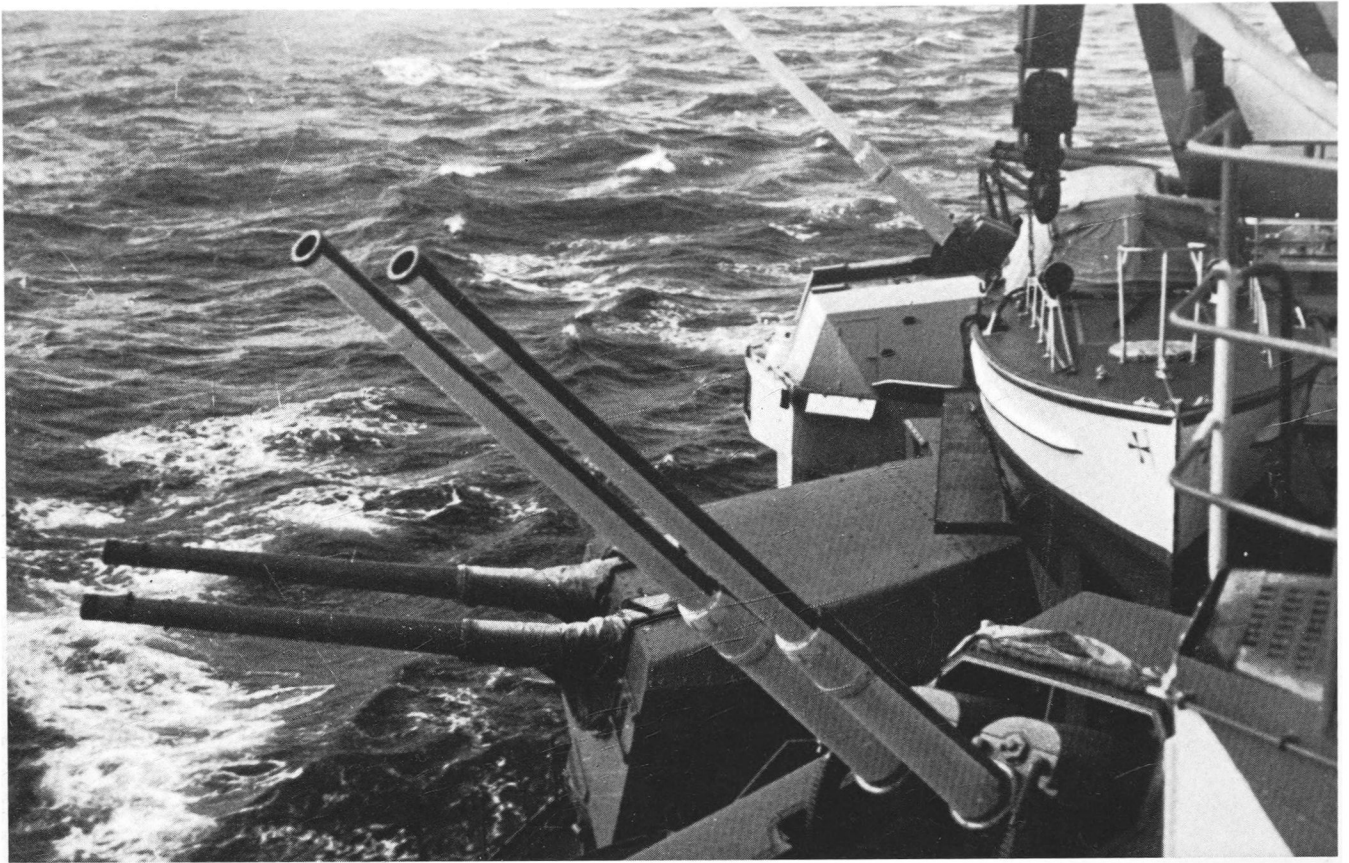




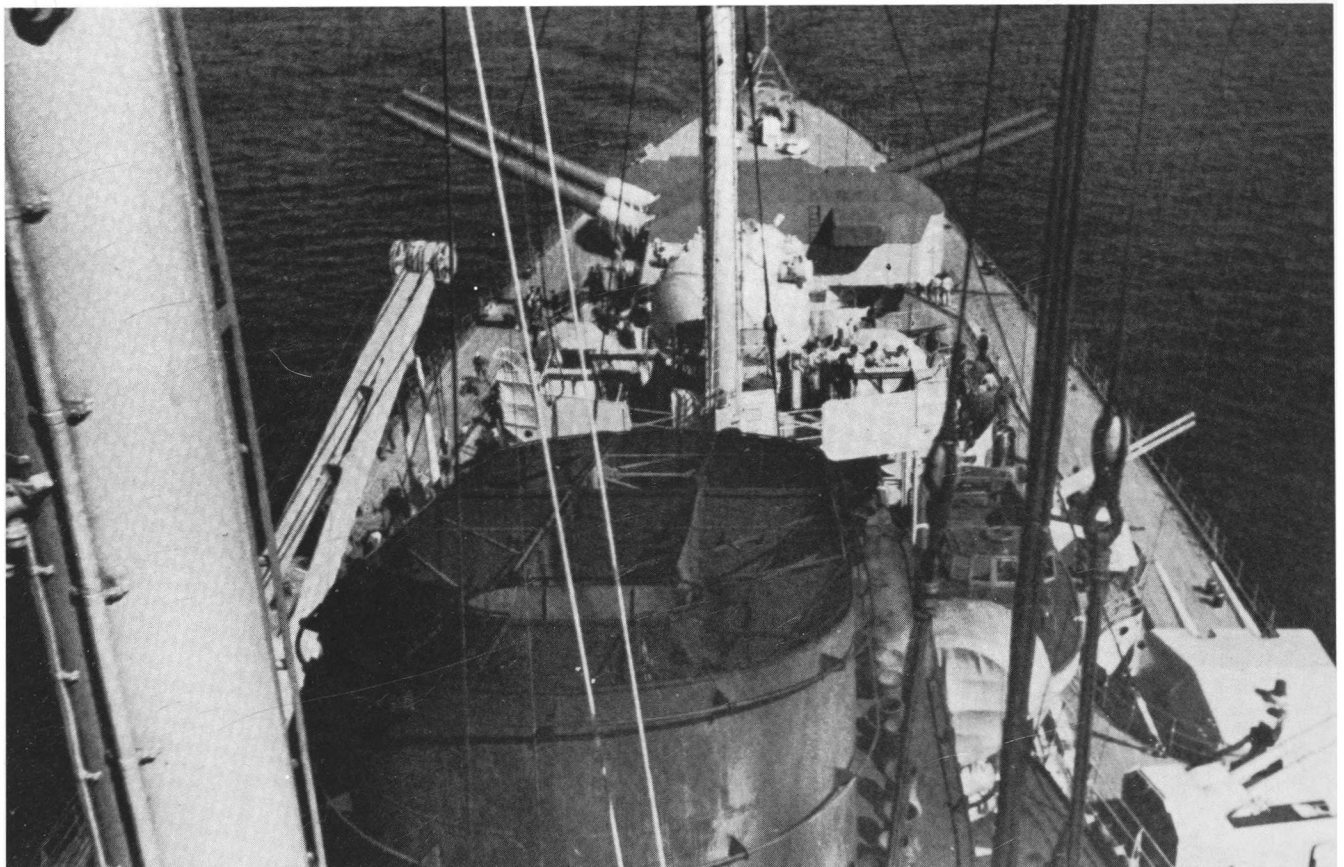
Starboard view of turret B, turret Stb I and the bridge superstructure including the bridge tower. Typically in photographs of this era, the revolving hoods of the fore director control tower and foretop have been trained aft in order to hide the large radar aerials from view.



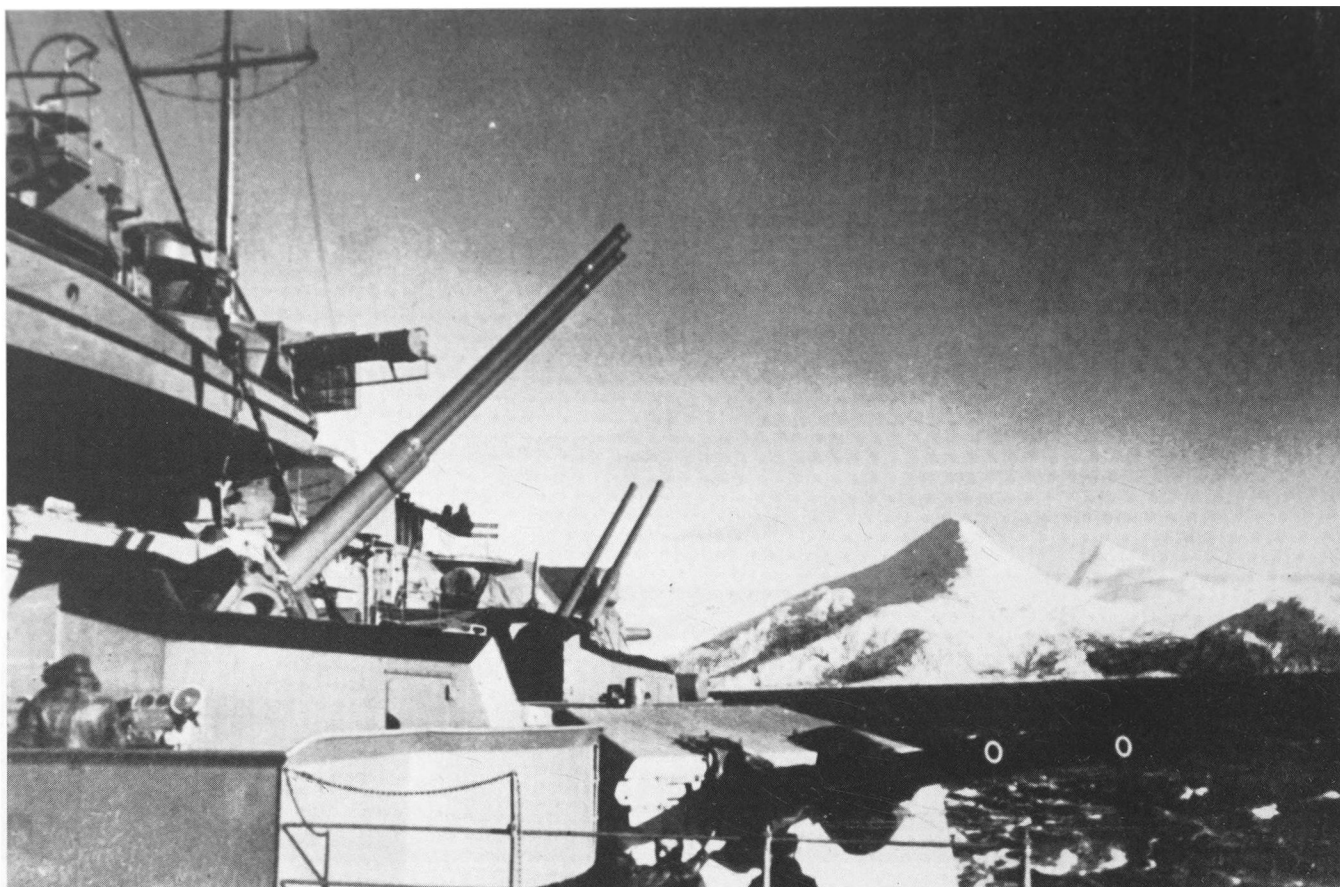
Summer 1942, a view of the starboard superstructure near the funnel and just behind the bridge tower.



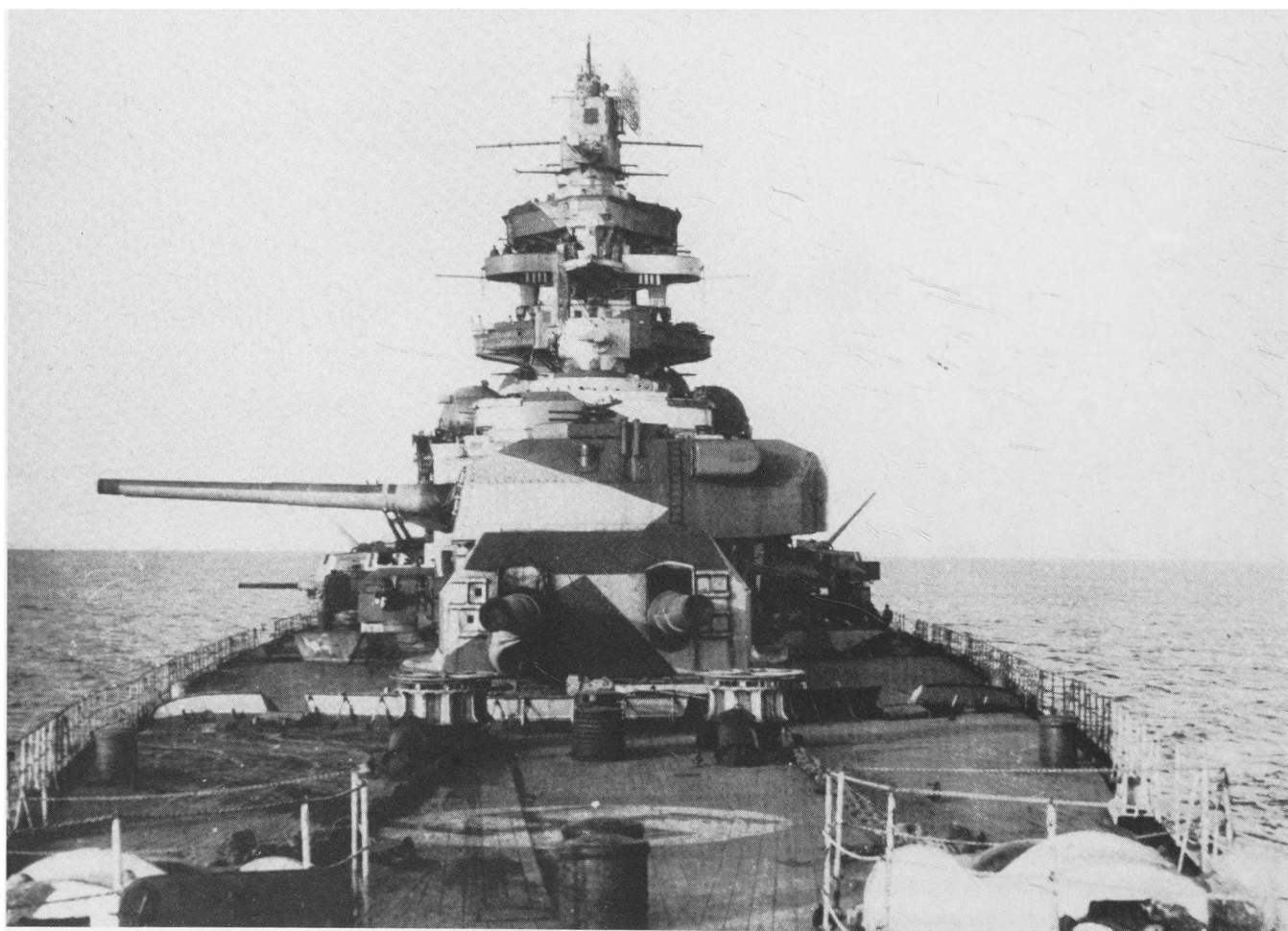
View of the two starboard 10.5cm AA guns in twin mountings and the 15cm turret Stb II. On the right is a pinnacle with the Admiral's pennant on the bow. Note the camouflage patterns applied to the guns.

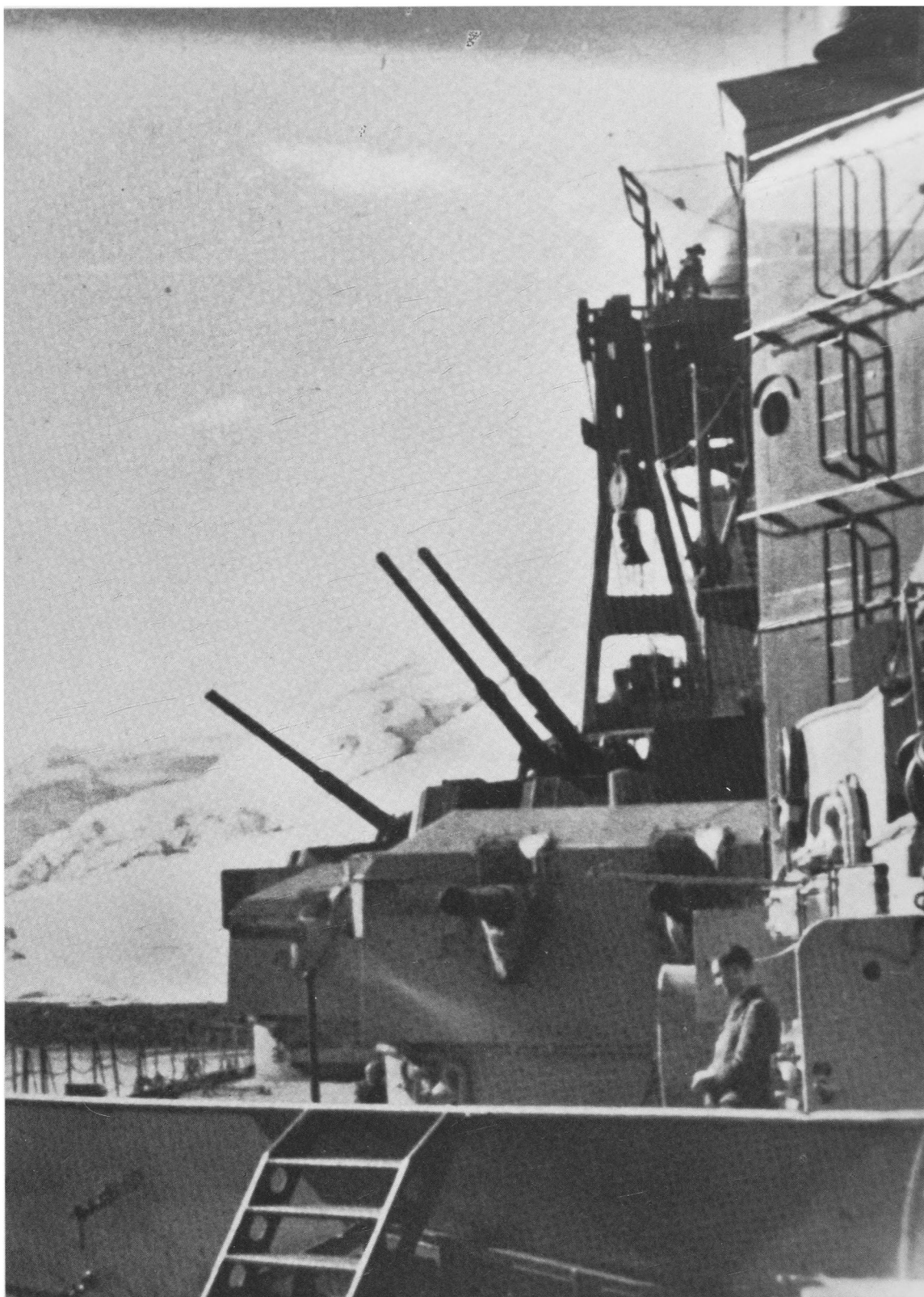


View from the foretop onto the quarterdeck. In the foreground the funnel with the gas outlets can be seen, with the single pole of the mainmast directly behind. Behind the mainmast itself is the aft director control tower for the ship's AA artillery. Turrets C and D have been trained to port and starboard respectively. Also note the 15cm turret Bb III and the 10.5cm AA gun in twin mounting.



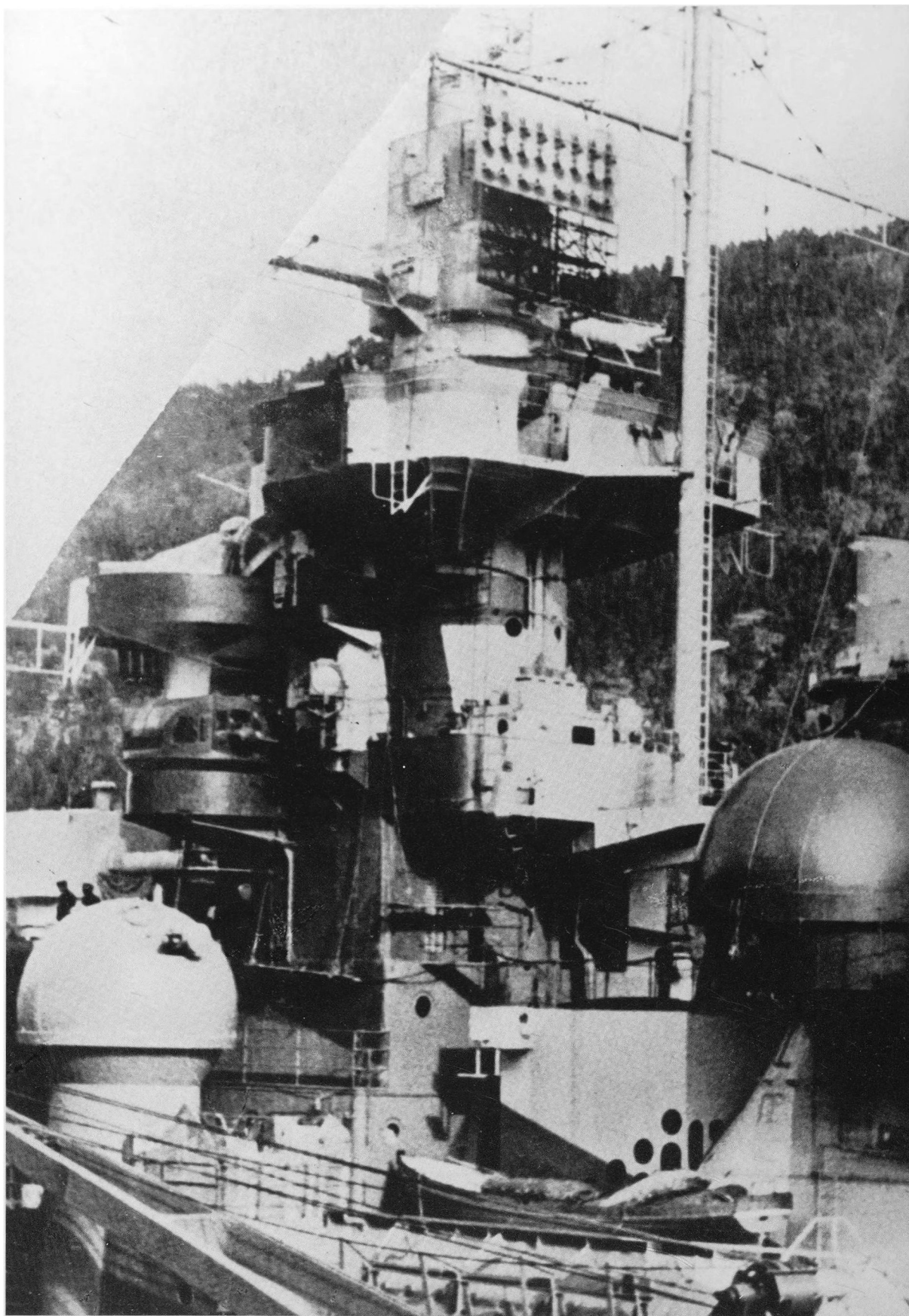
Tirpitz approaching the Lofoten islands, 9 March 1942. The 10.5cm AA guns are manned, as are the lighter weapons.





Tirpitz in Norway, 1943. This is a view from the forecastle. Note, in the foreground, stairs have been fitted to the breakwater which is rather high and difficult to traverse. The breakwater had to split breaking seas in order to protect delicate parts of the ship from the force of the water. The front part of the bridge superstructure, with handrails and step irons attached, can be seen to the right of the frame. The two 15cm turrets Stb I and II are in their basic positions and the barrels of the twin 10.5cm AA guns are elevated towards the sky.

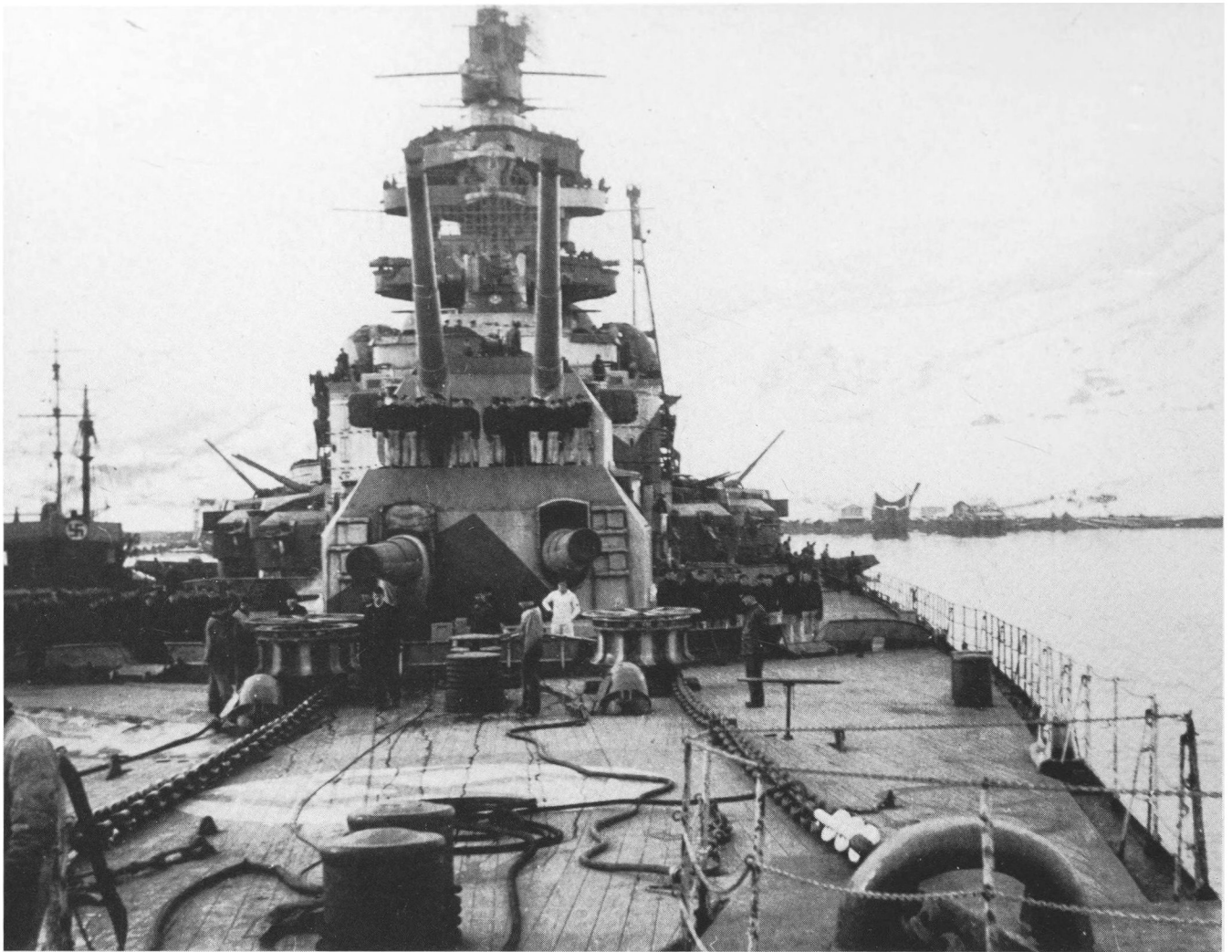
◀ *Tirpitz* in 1944. The revolving hood on the foretop with the 10.5m base rangefinder is fitted with additional platforms; the hood already carries the new aerial of the radar set FuMO 26. Turret B has been trained to starboard, and the revolving hood of the fore conning tower with the aerial of the FuMO 23 has also been trained to this direction. Both wings of the bridge have been folded up. Note the swastika in the white roundel on the forecastle which served as an aerial recognition aid.



Tirpitz in 1943. A view of the bridge tower. The two revolving hoods on the foretop have been trained aft which affords a good view of the 10.5m base rangefinder and the aerials of the radar sets FuMO 23 and FuMO 27. The two round cupolas are the hoods of the fore AA artillery director control towers.

A view from the bridge tower onto the forecastle. The 2cm AA guns in quadruple mounting fitted in 1942 to the roof of turret B and the bridge superstructure are visible. ►

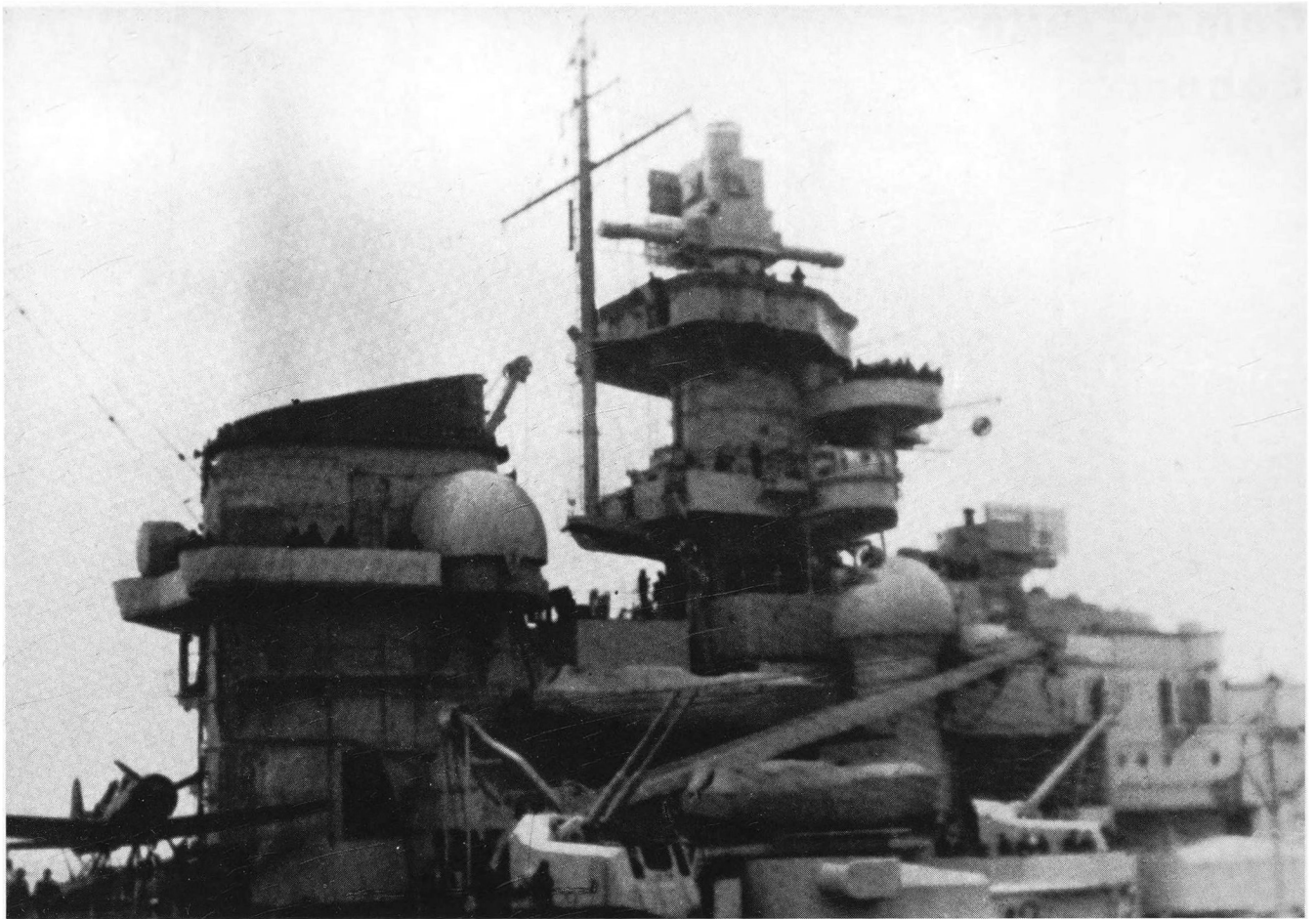




Tirpitz in 1944. Note the new aerial of the FuMO 26 radar in the foretop. A number of vessels are moored to her sides which suggests that the ship is probably being repaired after suffering battle damage.

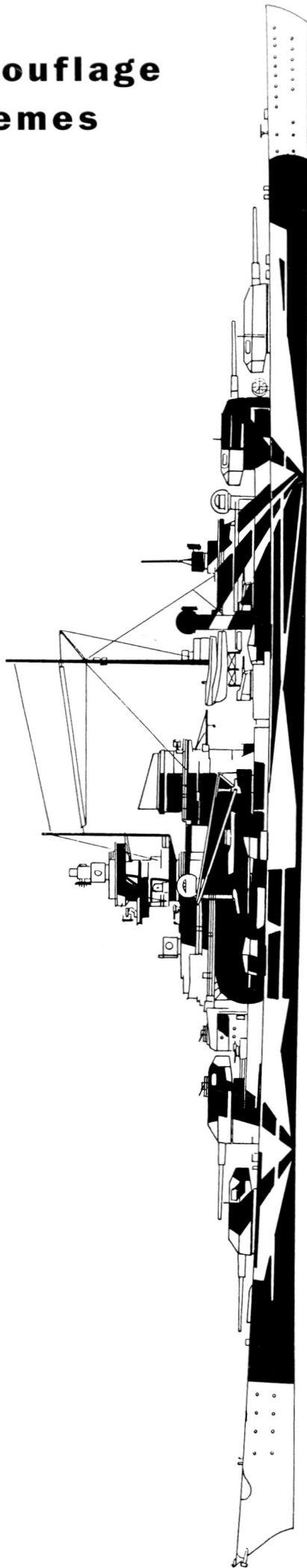


One of the many 2cm AA guns in quadruple mounting. The weapon was quite efficient in close-range fighting, but there was no protection for the guncrews from attacking low-flying aircraft which had managed to break through the screen of defensive fire.

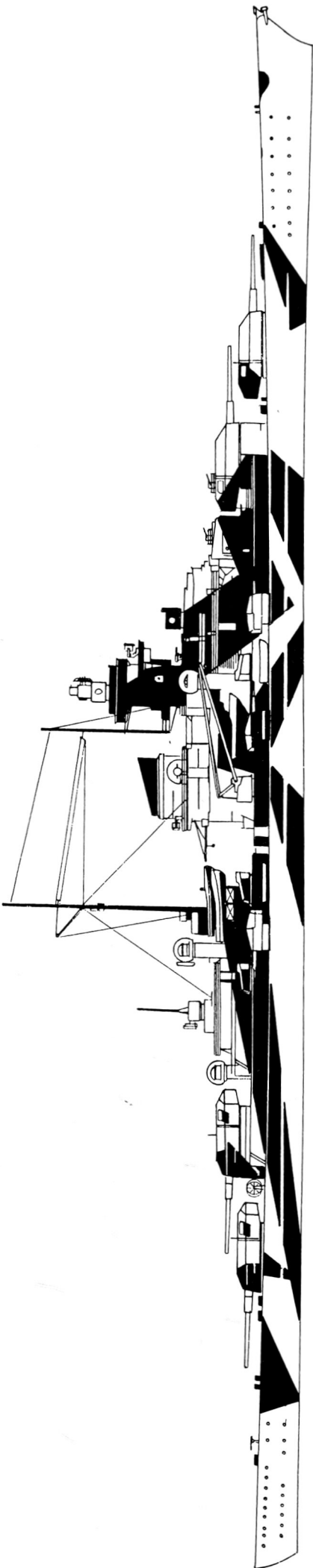


Dating from 1942 this photograph gives a view of bridge tower and funnel. The foretop has been fitted with an additional observation platform and the revolving hood has been fitted with another radar aerial of the FuMo 27-type, in addition to the aerial of the FuMo 23.

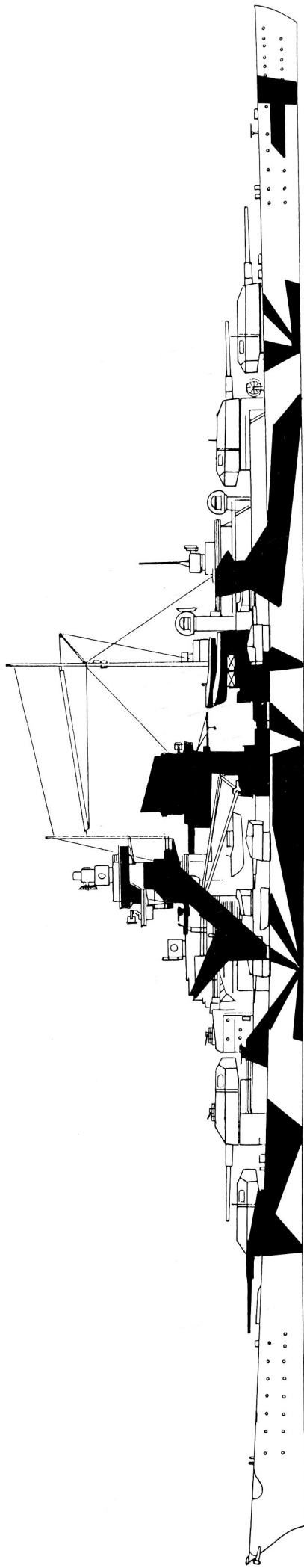
**Camouflage
Schemes**



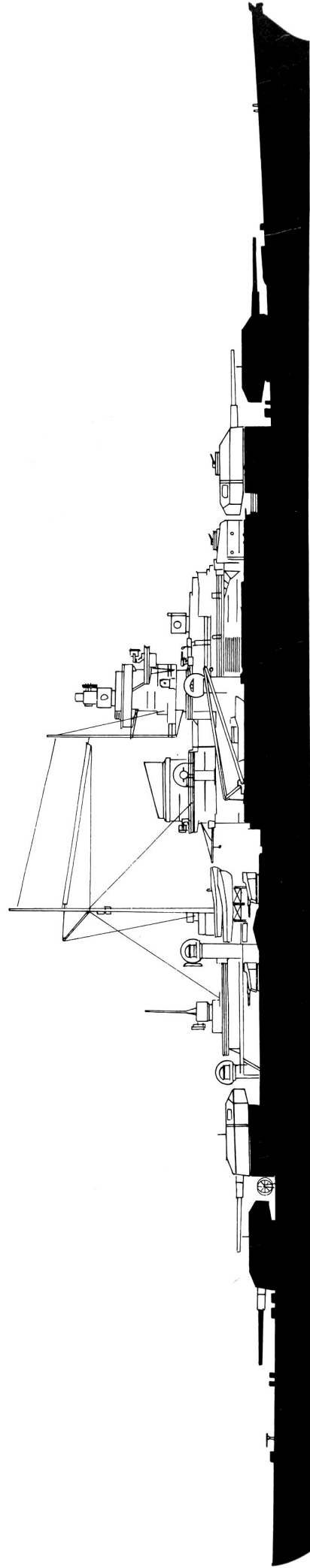
Camouflage pattern July 1942, port side



Camouflage pattern March 1944, starboard side



Camouflage pattern March 1944, port side

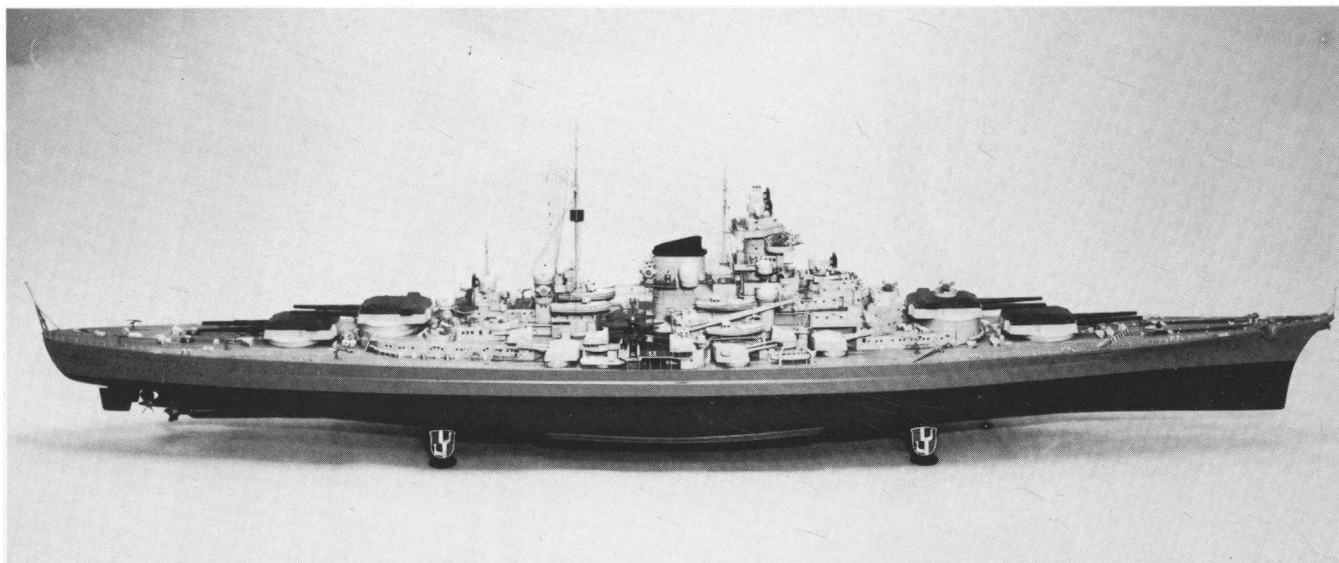


Camouflage pattern May - August 1944, starboard side

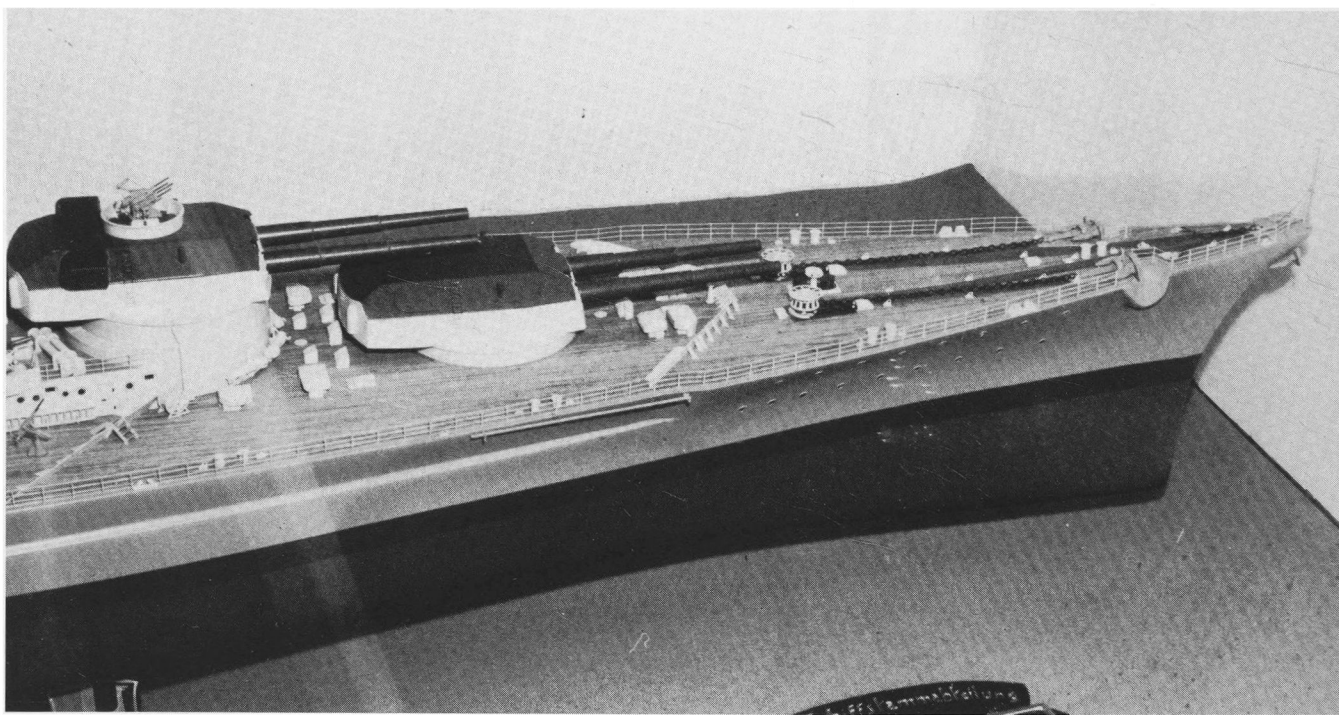
Tirpitz as scale model

This model of *Tirpitz*, built in 1:100 scale by Mr W Fraider, is on display in the Kuestenmuseum in Wilhelmshaven. It belongs to a series of German warship models, all built in the same scale by the same modeller, depicting ships from the early German navies to the Kriegsmarine in 1945.

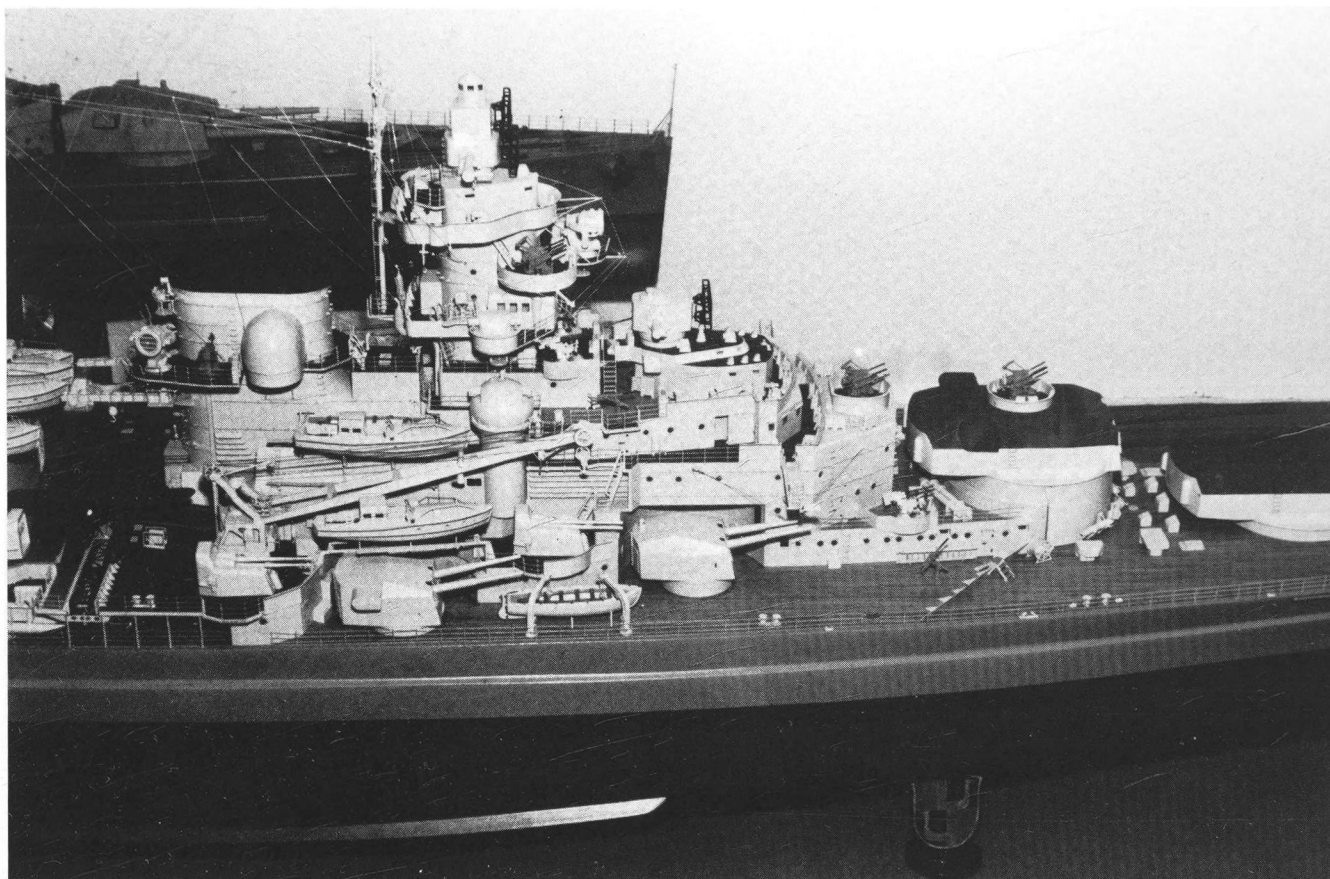
As this model of *Tirpitz* was fairly expensive, many societies and institutions and also the Bordgemeinschaft Tirpitz (a society of ex-sailors who sailed on *Tirpitz* and who have annual meetings in Wilhelmshaven) made collections and donated this model to the museum.



A complete view of the model showing *Tirpitz* as she appeared in 1943-4.



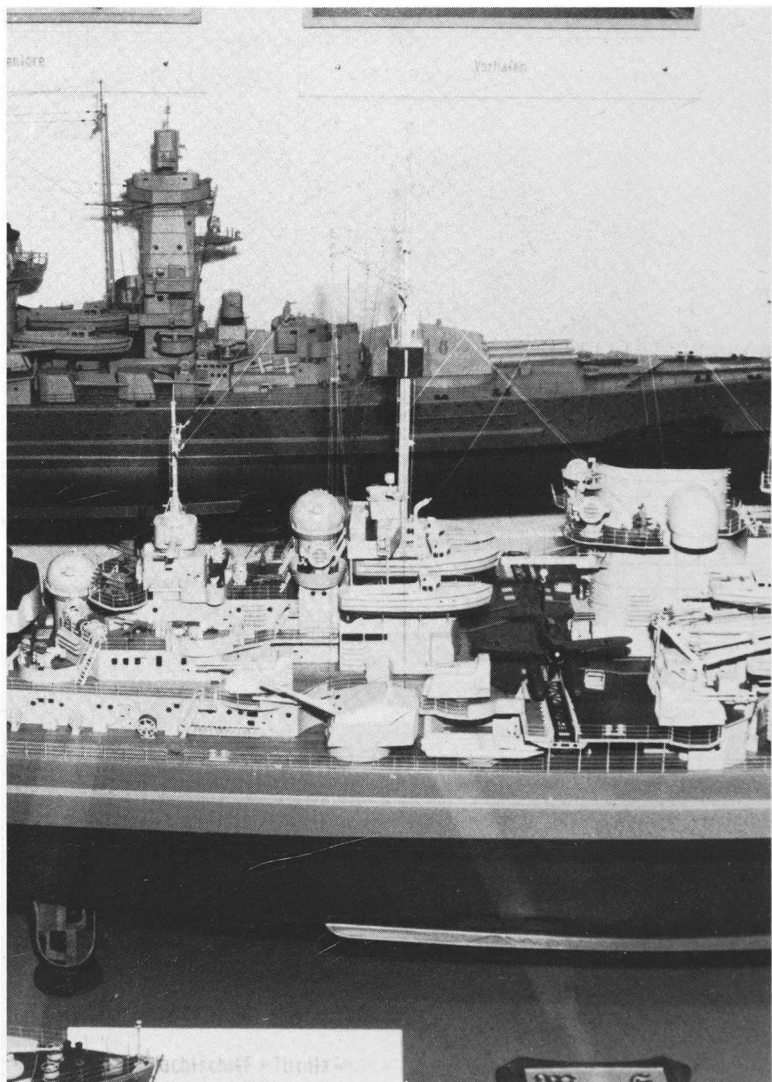
The front of the model. On top of turret B there is a 2cm AA gun in quadruple mounting, and behind the barbette another 2cm AA gun in single mounting. The eye anchor is at the bow and the other two anchors can be seen in the hawses on starboard and port. Note the many hatches and caps on the upper deck including cable and line drums and also capstans. On the ship's side beneath the fore breakwater is the starboard boom in its folded-down position.

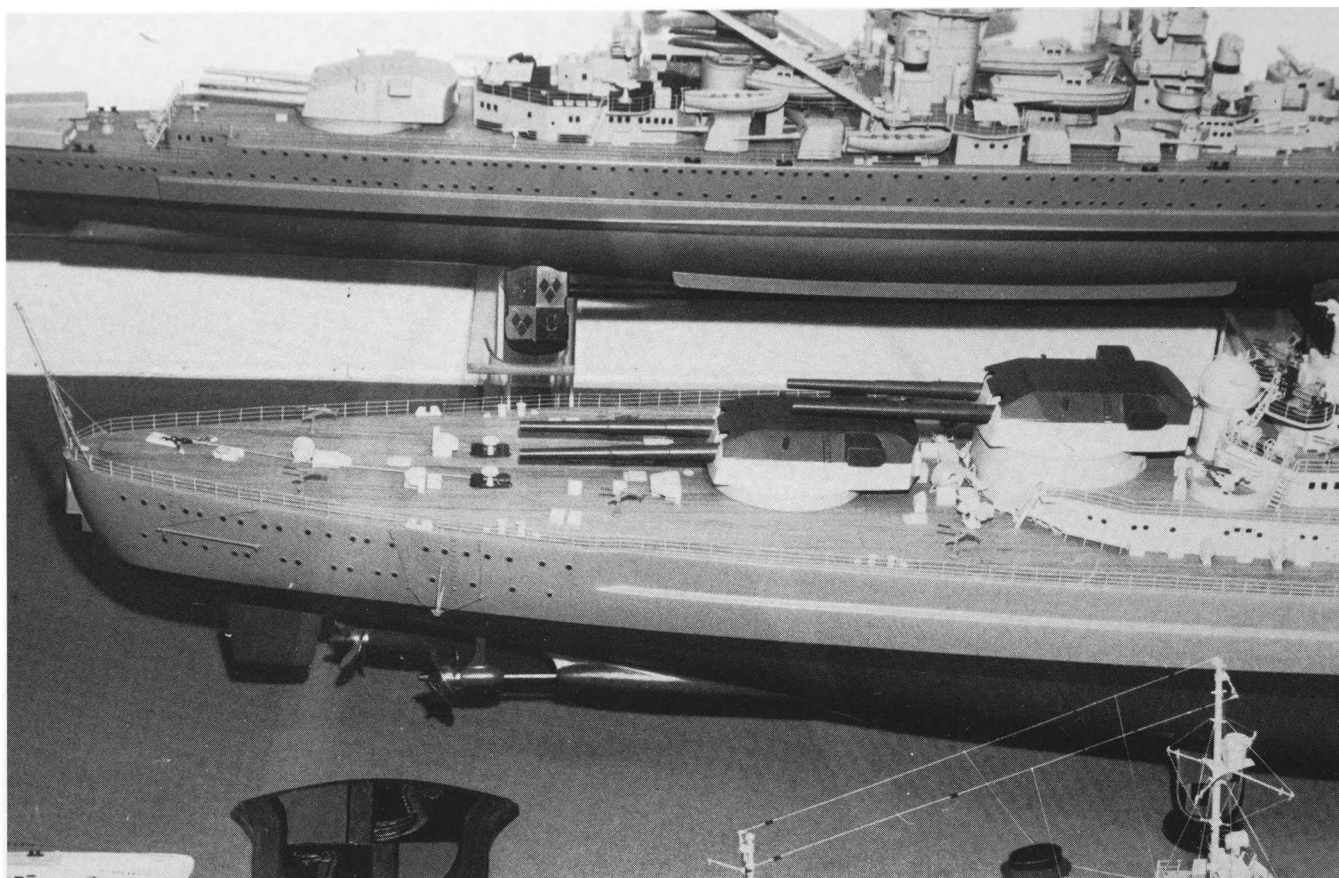


Bridge, conning tower, bridge tower and funnel. Note the 2cm AA gun in quadruple mounting on turret B and another one behind this turret on the bridge. An additional gun mounting can be seen on the platform under the foretop platform, with a searchlight behind. There are many 3.7cm AA guns in twin mountings on the far side of turret B and on the deck behind the conning tower. On the foretop the original revolving hood with the 10.5m base rangefinder can be seen. Two additional platforms have now been fitted, and the revolving hood carries the aerials for the radar sets FuMO 23 and FuMO 27. The director control towers for the fore twin 10.5cm AA guns are covered with round hoods. There is another quadruple 2cm AA gun, and a searchlight, on the funnel platform. The two 15cm turrets Stb I and Stb II and also the twin 10.5cm AA guns can be seen on the upper deck. The starboard crane is in its basic position; the boats are stowed between this and the funnel.

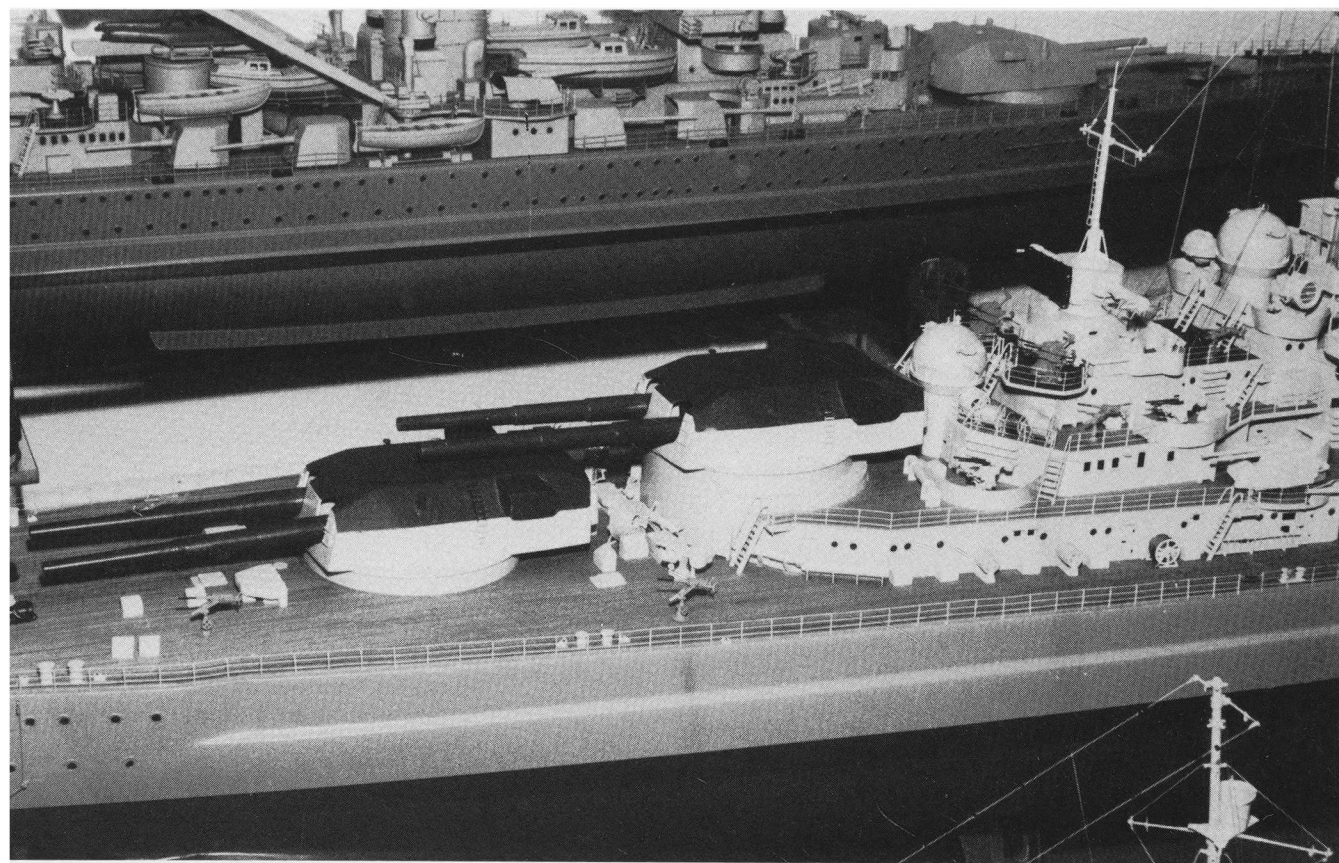
The midship section. The mainmast stands on top of the hangar, and on the far aft side are the cupolas of the two aft AA artillery director control towers. Between them is the aft conning tower with its 10.5m base rangefinder and two more 2cm AA guns in twin mountings. The catapult is mounted in a transverse position between mainmast and funnel, and it carries an Arado Ar 196.

Directly behind and under the catapult a number of torpedo tubes can be seen; these were added when the ship was planned as a commerce raider in the Atlantic. *Tirpitz* never took on this role as *Bismarck* was sunk. Behind the catapult is 15cm turret Stb III, and above it two more twin 10.5cm AA guns. Note the bilge keel at the hull. The model visible behind *Tirpitz* is the pocket battleship *Admiral Graf Spee*.

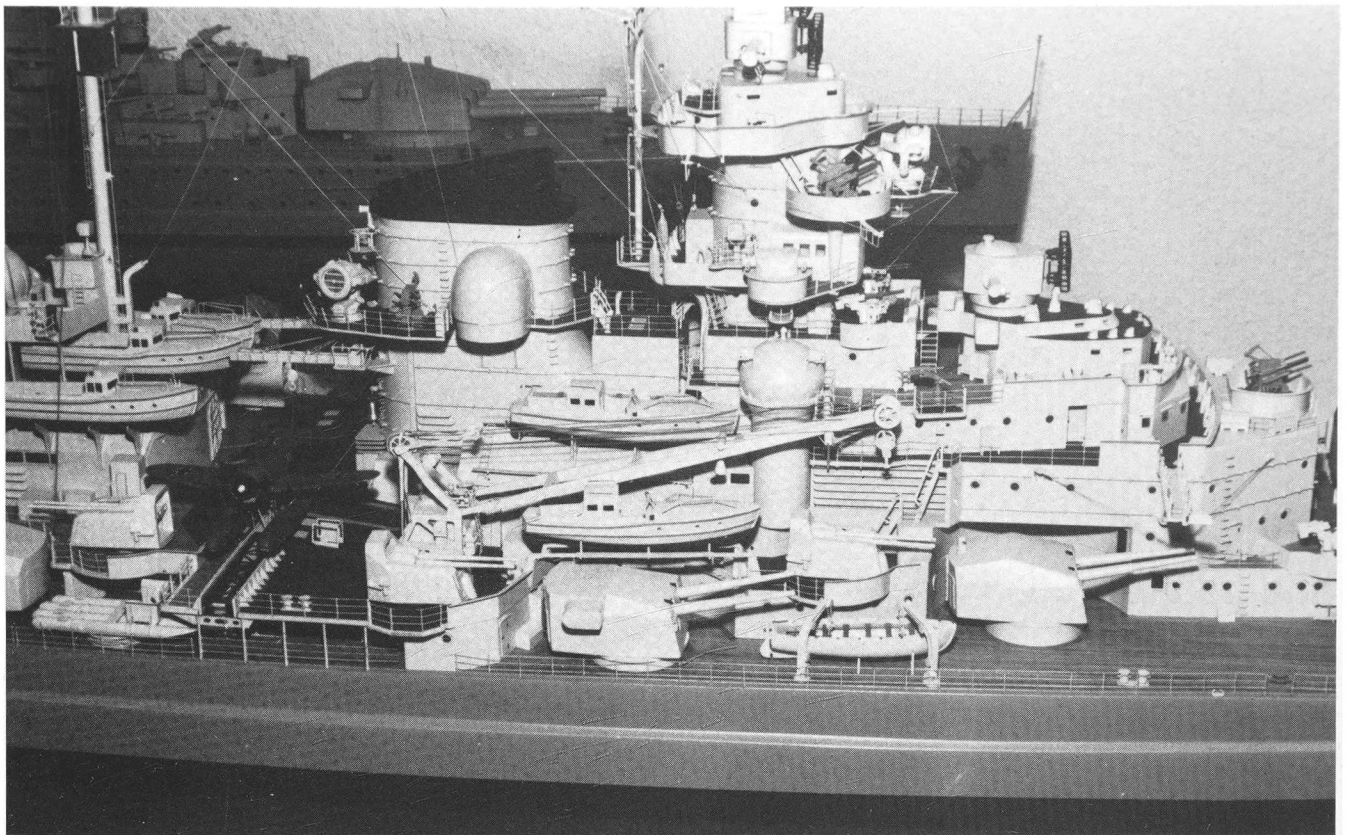




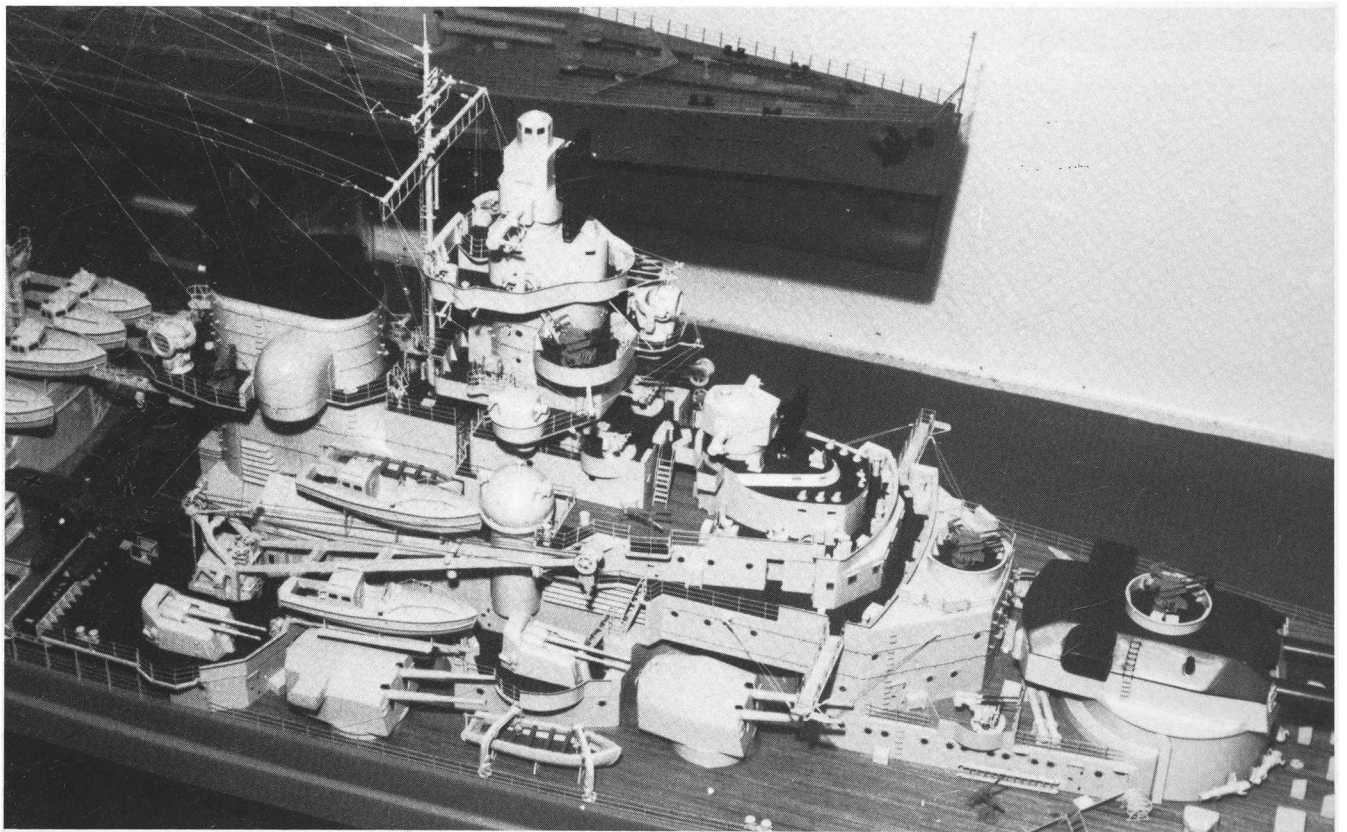
Shown here are the stern of *Tirpitz* and the two after turrets C and D. Also visible are the 2cm AA guns in single mountings on the deck directly behind turret C and a 3.7cm AA gun in twin mounting. Note the stern anchor, the arrangement of the propellers and rudders and also the many reels and hatches on the deck.



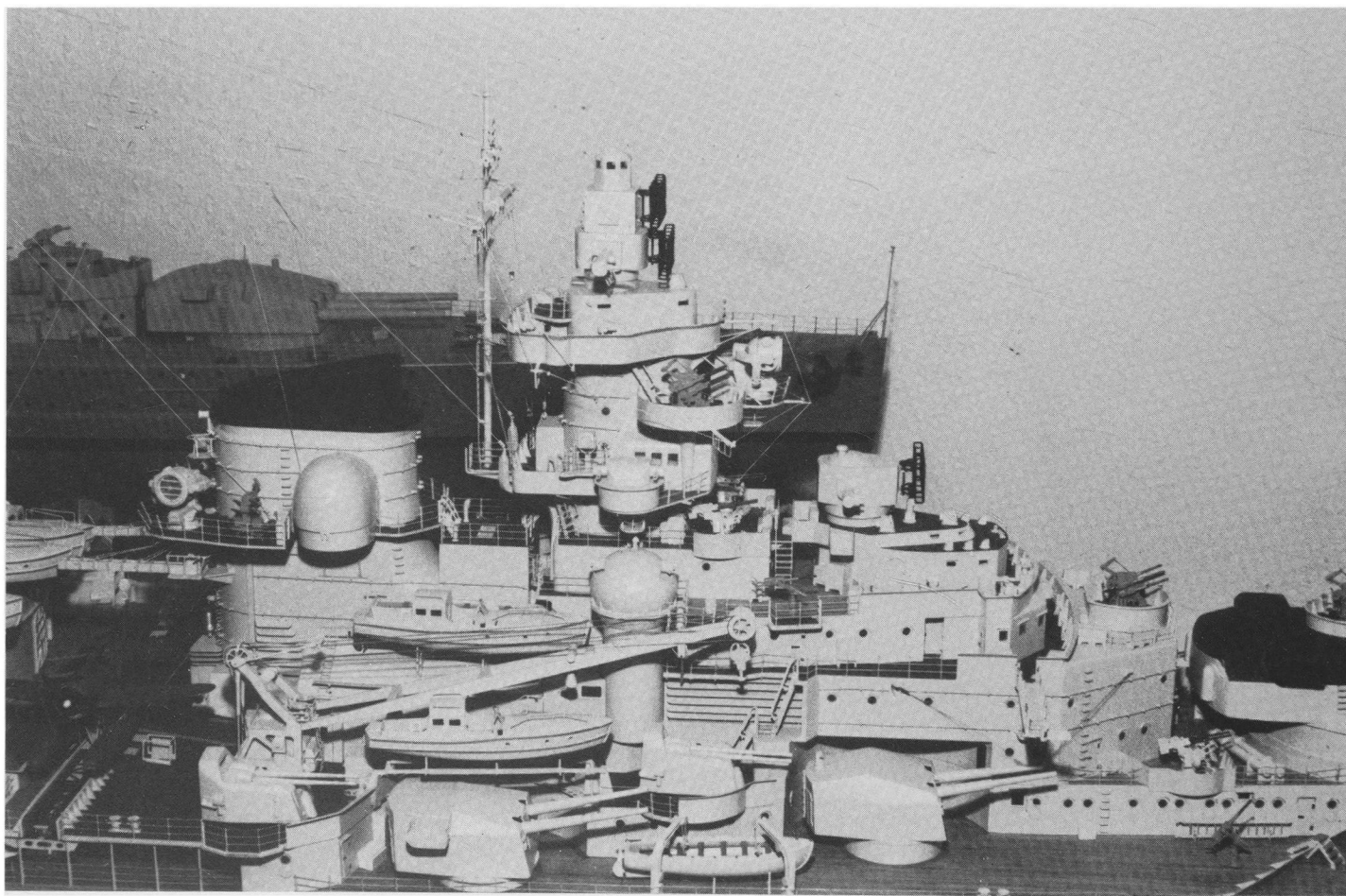
Another view of the rear part of the ship. Note the numerous superstructures and hatches on the upper deck. No rope reel, cable reel, companion hatch, bollard or railing post has been forgotten. The model in the background is the pocket battleship *Admiral Graf Spee*.

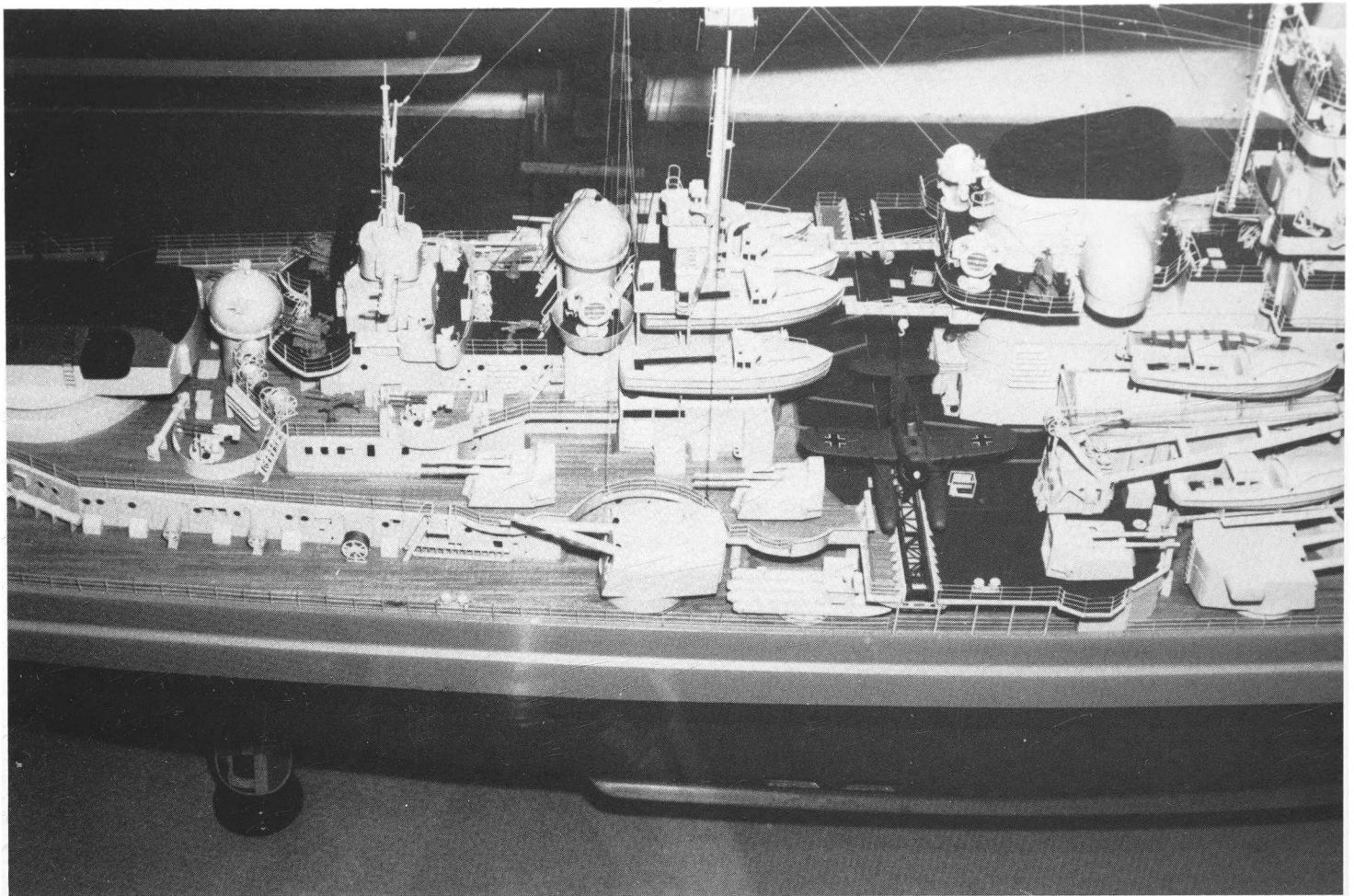


Another view of the midship section, seen from a different angle. Note the edge of the armour belt visible on the side of the hull.

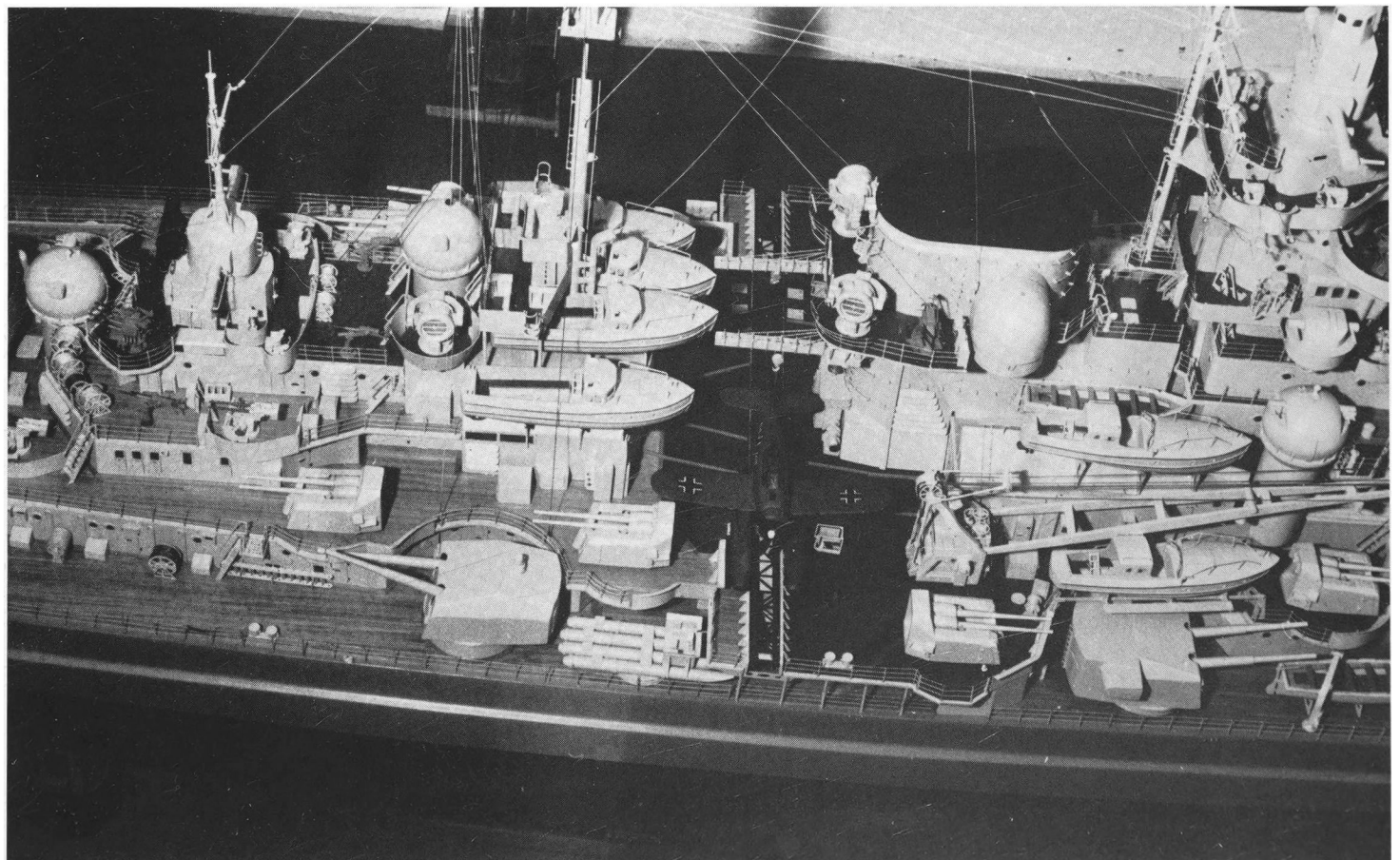


Bridge superstructure, bridge tower and funnel seen from an upper perspective. It is amazing to find out how many details can be seen on a model of this size, many more details than on a real ship. Photographs of a real ship usually show her in action while on a model everything is in its basic position. Note the two wings of the bridges which are folded down. In front of the barbette of turret B, the Otter devices of the mine-clearing gear can be seen. The small caps on top of the conning tower are periscopes and aiming devices.





Another four photographs taken from a variety of angles with detailed views of the different sections of the deck superstructure.
Note the various types of boats.





The model of *Tirpitz* seen from behind. Above the starboard propeller the folded-up propeller protector can be seen, and behind it the boom at the stern. Note the taper of the armour belt. Behind *Tirpitz* is the model of *Admiral Graf Spee*, and in the foreground a model of a type M40 minesweeper.

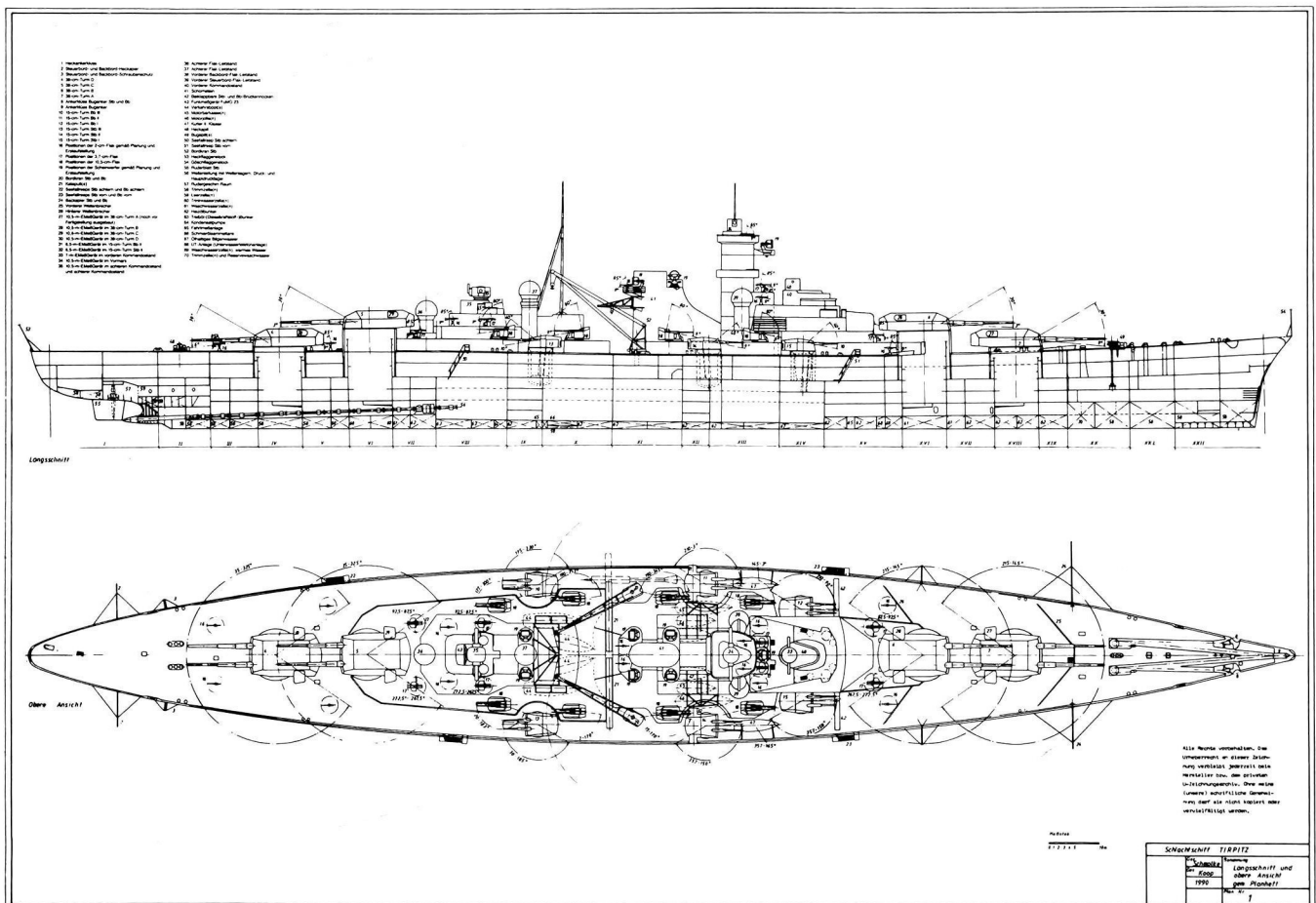


A radio-controlled model of *Tirpitz* built by Mr R Wagner from Nordholz/Cuxhaven in Germany.

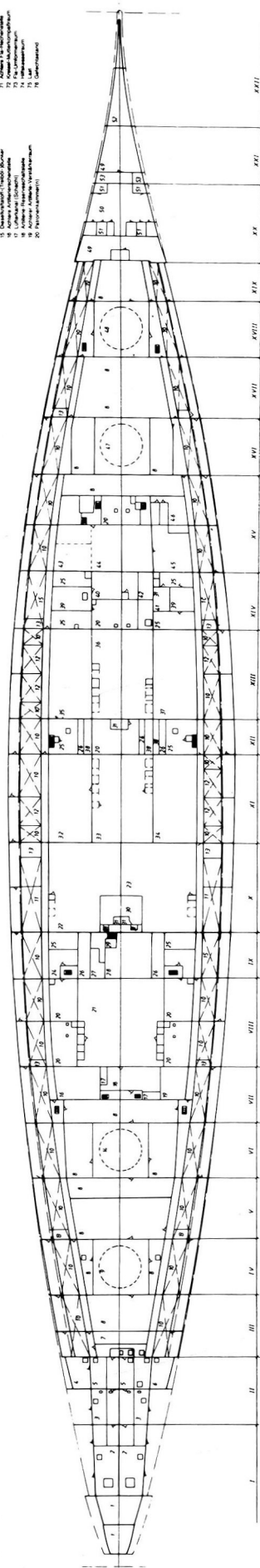
The plans

- | | | | |
|----------------|--|----------------|---|
| Plan 01 | Internal profile and deck plan | Plan 05 | Sectional drawings |
| Plan 02 | Main deck
Battery deck
Middle deck | Plan 06 | Sectional drawing and deck plan according to official set of drawings |
| Plan 03 | Lower deck
Platform deck
Lower platform deck and stowing | Plan 07 | Transverse sections IV-X according to official set of drawings |
| Plan 04 | Superstructure
Bridges | Plan 08 | Transverse sections XI-XV according to official set of drawings |
| | | Plan 06 | Lines and frames |

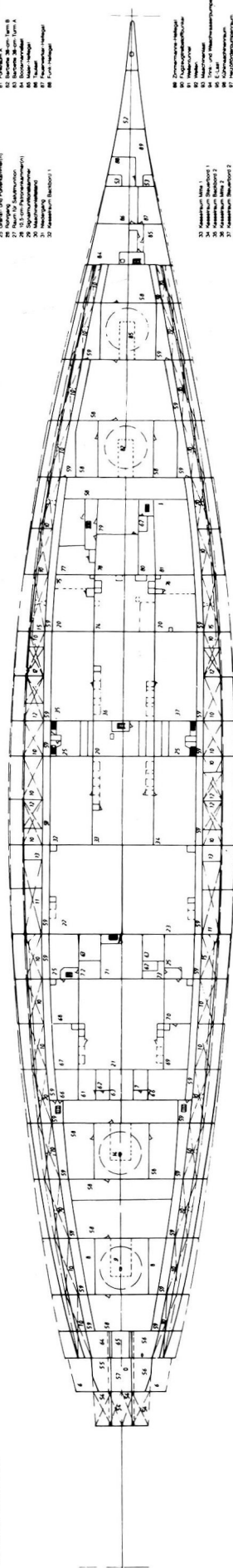
Plan 01



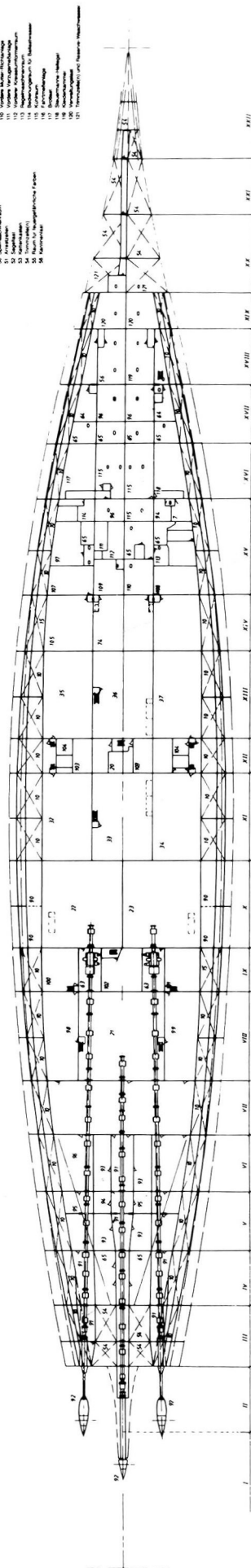
Oberes Plattendeck



Milleres Plattformdeck

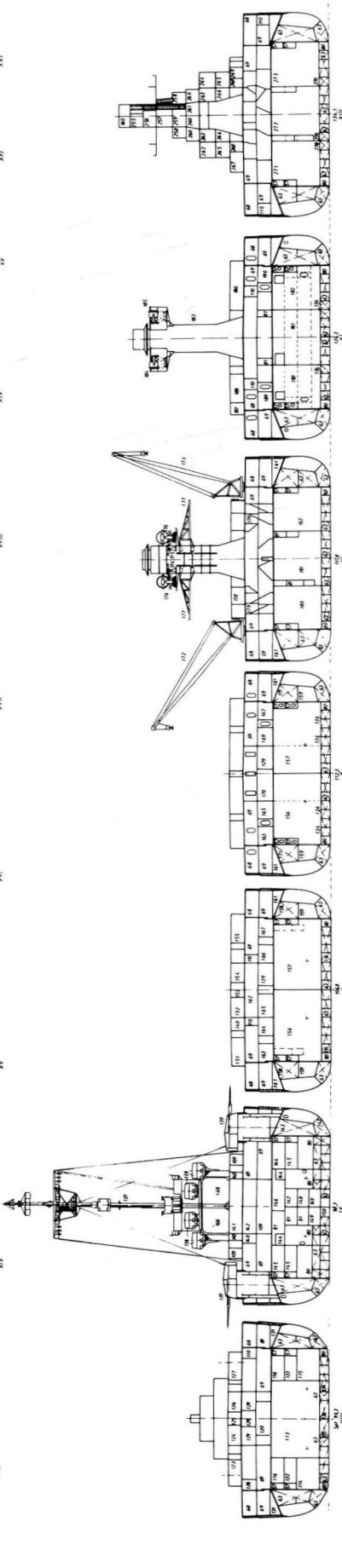


Unteres Plattformdeck u. Stauung



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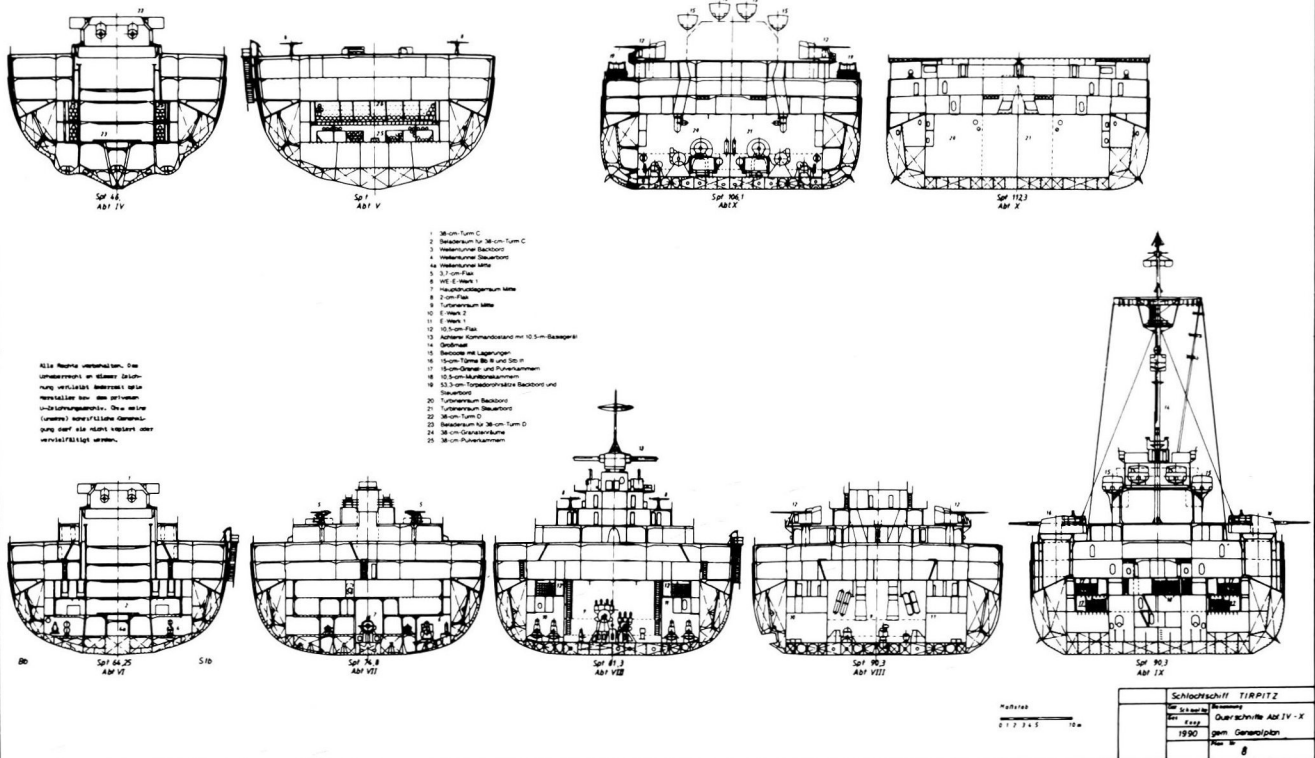


Netztief	Schlachthof TIRPITZ		
	Gez.	Bewertung	
	Abgabe	Querschnitte	
	Vom	nach Planhaft	
	1990		
		Rechn.	5

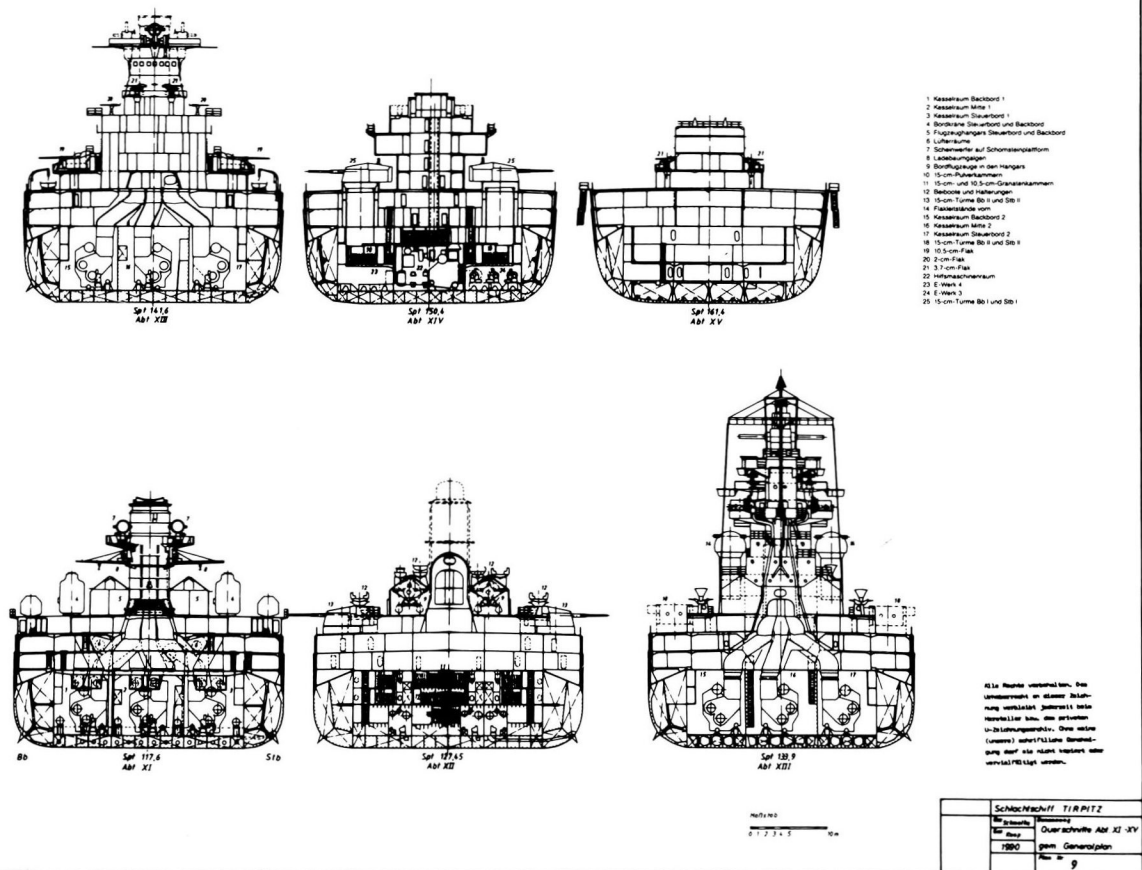


Grz.	Schm. m. 12a	Benennung	Schoenischiff TIRPITZ
Grz.	Kap.		Langschiff und Obere Ansicht gem. Generalplan
	1990	Plan Nr.	7

Plan 07



Plan 08



Plan Keys

Note: On some of the original plans all captions are missing. As it would be highly speculative to create new captions, all these have been omitted. We have also not included the many hatches, manholes and companion hatches in our drawings.

PLAN 01

1 hawse, stern anchor
2 booms, starboard and port
3 propeller protectors, starboard and port
4 38cm turret D
5 38cm turret C
6 38cm turret B
7 38cm turret A
8 hawse bow anchors, starboard and port
9 hawse bow anchor
10 15cm turret port III
11 15cm turret port II
12 15cm turret port I
13 15cm turret starboard III
14 15cm turret starboard II
15 15cm turret starboard I
16 position of 2cm AA guns according to plans and initial installation
17 position of 3.7cm AA guns
18 position of 10.5cm AA guns
19 planned position of searchlights
20 crane, starboard and port
21 catapults
22 aft gangways, starboard and port
23 fore gangways, starboard and port
24 boom, starboard and port
25 fore breakwater
26 aft breakwater
27 10.5m-base rangefinder in 38cm turret A (removed before completion)
28 10.5m base rangefinder in 38cm turret B
29 10.5m base rangefinder in 38cm turret C
30 10.5m base rangefinder in 38cm turret D
31 6.5m base rangefinder in 15cm turret port II
32 6.5m base rangefinder in 15cm turret starboard II
33 7m base rangefinder on fore conning tower
34 10.5m base rangefinder on foretop
35 10.5m base rangefinder on aft conning tower and aft conning tower
36 aft AA director control tower
37 aft AA director control tower
38 fore AA director control tower, port
39 fore AA director control tower, starboard
40 fore conning tower
41 funnel
42 bridge wings, foldable
43 radar set FuMO 32
44 traffic boats
45 motor launch
46 motor pinnace
47 cutter 3. class
48 capstan, stern
49 capstan, bow
50 stern gangway,

starboard
51 gangway, starboard
52 crane, starboard
53 stern flag staff
54 jack staff
55 rudder, starboard
56 shafts with bearings
57 steering gear room
58 trim tanks
59 reserve tanks
60 fresh water tank
61 washing water tank
62 oil fuel tank
63 diesel tank
64 evaporation pump
65 speedometer
66 lubrication oil tank
67 oil-polluted bilge water
68 UT-installation
69 washing water tanks, warm water
70 trim tanks and reserve washing water

PLAN 02

1 barbettes and training rack 38cm turret D
2 barbettes 38cm turret C
3 barbettes 38cm turret B
4 barbettes and training rack 38cm turret A
5 barbettes and training rack 15cm turret port III
6 barbettes and training rack 15cm turret port II
7 barbettes and training rack 15cm turret port I
8 barbettes and training rack 15cm turret starboard III
9 barbettes and training rack 15cm turret starboard II
10 barbettes and training rack 15cm turret starboard I
11 crane mountings, starboard and port
12 hawse, stern anchor
13 gangways, starboard and port
14 training arcs, 38cm and 15cm turrets
15 cabin for 1 engineer officer (WI)
16 cabin for 2 officers
17 cabin for electrical engineer officer (EI)
18 cabin for admin officer (II.VO)
19 cabin for admiral staff officer (III.AstO)
20 cabin for admiral staff officer (II.AstO)
21 cabin for admiral staff officer (I.AstO)
22 cabin for admin officer (III.VO)
23 cabin for chief admin officer
24 cabin for fleet surgeon
25 cabin for station officer
26 cabin for adjutant
27 executive officer's office
28 executive officer's cabin
29 cabin for fleet admin officer
30 cabin for fleet secretary
31 fleet crypto office
32 provost officer's cabin
33 provost officer's office
34 switchboard room
35 admin office
36 crypto office
37 teleprinters
38 officer's WC
39 officer's bathroom
40 wardroom
41 wardroom pantry

42 officer's conference room
43 ante-room
44 telephones
45 officer's bathroom and showers
46 wardroom store room
47 station officer's office
48 ventilation room
49 cabin for chief engineer officer (LI)
50 vegetable store
51 officer's galley
52 ensign's workshop
53 ensign's pantry
54 chief clerk's office
55 fleet engineer's cabin
56 loudspeaker control room
57 ensign's WC
58 ensign's washroom
59 hammock store
60 pharmacy
61 tailor's shop, for 5 tailors
62 barber
63 shoemaker's shop, for 5 shoemakers
64 potato store
65 store room
66 hospital store room
67 hospital admin office
68 dentist
69 operation theatre
70 X-ray room
71 washroom and bathroom for hospital
72 sickbay
73 hospital WC
74 isolation ward
75 capstans, bow, starboard and port
76 hawse, starboard and port
77 barbettes 38cm turrets A - D
78 barbettes 15cm turrets starboard I - III and port I - III
79 fog generator
80 WC
81 cabin for 2 AA fire control SNCOs
82 cabin for 2 SNCOs
83 cabin for 2 artillery SNCOs
84 cabin for 1 admin SNCO
85 cabin for AA director control SNCO and AA artillery SNCO
86 cabin for pyrotechnics SNCO and AA artillery SNCO
87 cabin for 2 signals SNCOs
88 cabin for catering SNCO
89 cabin for fireworker and artillery mechanic
90 cabin for 2 AA fire control SNCOs
91 cabin for 2 artillery SNCOs
92 cabin for 1 engineer SNCO
93 cabin for 2 engineer SNCO
94 cabin for 2 engineer SNCO
95 cabin for 1 chief signals SNCO and 1 signals SNCO
96 cabin for electrical engineer SNCO
97 cabin for 1 chief admin SNCO
98 cabin for 2 SNCOs
99 cabin for 2 SNCOs
100 SNCO's WC
101 bathroom and showers for SNCOs
102 cabin for 2 SNCOs
103 cabin for 2 SNCOs
104 cabin for 1 SNCO
105 admin office
106 cabin for 2 SNCOs
107 cabin for 2 SNCOs
108 cabin for 1 SNCO
109 cabin for 2 SNCOs

110 engineer SNCO's pantry
111 engineer SNCO's WC
112 ventilation room
113 engineer NCO's deck
114 engineer SNCO's bedroom
115 hammock store
116 engineer NCO's deck
117 seamen's reading room
118 SNCO's galley
119 engineer section office
120 rear pantry for seamen
121 cabin for 2 SNCOs
122 cabin for 2 SNCOs
123 oil fuel bunker control station
124 seamen's galley (rear)
125 watchroom for engineer NCOs
126 seamen's heads
127 seamen's washplace
128 seamen's deck
129 cabin for 4 cooks or stewards
130 cabin for 4 stewards
131 rear canteen
132 mineral water fountain
133 store room
134 dishwashers
135 radio room C
136 oil laboratory
137 water laboratory
138 chimney
139 drying room
140 drying room
141 cabin for 2 cooks or stewards
142 cabin for 3 stewards
143 ventilation room
144 artillery store room
145 boom defence store room
146 seamen's pantry
147 store room for bakery products
148 bakery
149 seamen's bathroom and gas heating
150 seamen's bathroom
151 motor boat
152 accessories store room
153 store room for optical artillery instruments
154 laundry
155 steam laundry
156 canteen
157 NCO's washroom
158 seamen's galley
159 NCO's deck
160 NCO's pantry
161 NCO's WC
162 carpenter's shop
163 target store
164 sports equipment
165 cabin for 1 SNCO
166 cabin for 2 artillery SNCOs
167 cabin for 1 SNCO
168 cabin for 2 artillery SNCOs
169 cabin for 2 artillery SNCOs
170 SNCO's mess
171 mess pantry
172 cabin for catering SNCO and carpenter
173 cabin for 2 clerks
174 cabin for 2 bandleaders
175 cabin for 2 engineer SNCOs
176 cabin for 3 SNCOs
177 cabin for 1 SNCO
178 cabin for 2 engineer SNCOs
179 cabin for 2 engineer SNCOs
180 cabin for 2 electrical engineer SNCOs
181 cabin for 3 SNCO
182 sickbay
183 NCO's deck
184 reserve dressing station
185 engineer workshop
186 workshop store room
187 BU-workshop
188 central control

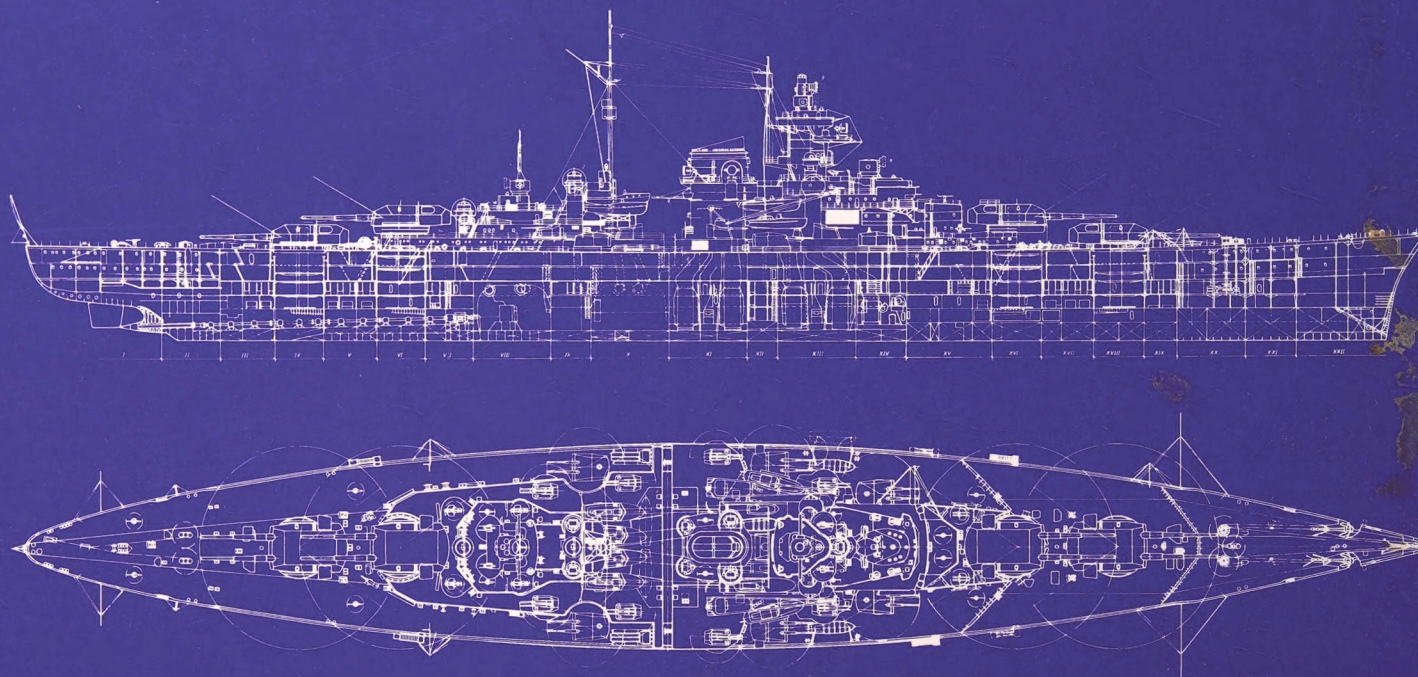
189 station electrical engineering workshop store room
190 telephone switchboard
191 electrical engineering workshop
192 admin office store room
193 artillery workshop
194 bosun's workshop
195 artillery store room
196 electrical engineering workshop store room
197 pumpmaster store room
198 combat repairs workshop
199 welding shop
200 forge
201 pumpmaster's workshop
202 Junkers-compressor room
203 hot water supply room
204 battery workshop
205 ventilator workshop
206 musical instruments store
207 signalling equipment store
208 electrical engineering workshop store room No 2
209 auxiliary boiler room
210 landing party artillery equipment
211 BU-workshop
212 radio workshop
213 gas protection store
214 store room for instruments
215 NCO's sleeping room and reserve hospital
216 chart room
217 combat dressing station

PLAN 03

1 SNCO's store room
2 rudder gear room, starboard and port
3 rudder compartment, starboard and port
4 admiral's store room
5 manual steering room
6 officer's store room
7 dry store
8 powder magazine
9 barbettes 38cm turret
10 oil fuel tank
11 lubrication oil tank
12 feed tanks
13 walkway
14 barbettes 38cm turret
15 diesel tank
16 aft artillery plotting office
17 ventilation air duct
18 artillery reserve switchboard room
19 aft artillery amplification room
20 cartridge magazines
21 central turbine room
22 turbine room, port
23 turbine room, starboard
24 bomb store
25 shell and powder magazine
26 trunk
27 blank ammunition store
28 10.5cm magazine
29 signalling ammunition store
30 machinery control centre
31 companion hatch
32 boiler room, port 1
33 boiler room, inner 1
34 boiler room, starboard 1
35 boiler room, port 2
36 boiler room, inner 2
37 boiler room, starboard 2
38 water tank
39 store room
40 control station
41 electrical machinery control station

42 damage control centre
43 radio room B
44 fore artillery plotting office
45 fore AA-switchboard room
46 transformer room
47 barbettes 38cm turret B
48 barbettes 38cm turret A
49 seamen's deck
50 capstan engine room
51 detention cells
52 sailmaker's store
53 chain room
54 trim tanks
55 inflammable paint store
56 canteen store
57 spirit store
58 shell magazine
59 cable trunk
60 store room
61 aft artillery reserve switchboard
62 air cooling installation
63 compressed air store room
64 meat store
65 pump room
66 gyro compass room
67 AA switchboard room
68 aft regulator room
69 aft DC-switchboard
70 aft central gun training unit
71 aft AA artillery plotting office
72 gyro compass room
73 AA artillery transformer room
74 auxiliary boiler room
75 store room
76 command post
77 fore artillery reserve switchboard
78 main artillery switchboard
79 fore artillery plotting office
80 fore artillery amplification room
81 radio room A
82 barbettes 38cm turret B
83 barbettes 38cm turret A
84 bosun's store
85 paint store
86 rope store
87 pyrotechnic magazine
88 radio store
89 carpenter's store
90 aircraft fuel tank
91 shaft tunnel
92 shafts
93 machinery store room
94 fresh water and washwater pumps
95 electrical store
96 cooling machinery room
97 oil fuel pumps
98 power plant 2
99 power plant 1
100 switchboard for power plant 2 and reserve switchboard
101 switchboard for power plant 1
102 aft AA-switchboard
103 auxiliary condenser room
104 damage control switchboard
105 power plant 4
106 power plant 3
107 switchboard for power plant 4
108 switchboard for power plant 3
109 fore DC switchboard
110 fore central gun training unit
111 fore distortion measuring installation
112 fore gyro compass room
113 regulator room
114 ballast pump room
115 cool room
116 speedometer
117 bread store

Produced in a convenient A4 format, each title in the series presents: the service history of an individual ship with reference to other ships in the same class; maps; numerous scale plans; contemporary photographs; camouflage details; photographs of completed models, including close-ups; incredible analytical diagrams; cross-sections; and a detailed bibliography.



Together with her sister ship *Bismarck*, the *Tirpitz* was the last, and largest, battleship ever built in Germany. After a construction period of five years, the *Tirpitz* was put into service in 1941, and her operations were circumspect from the outset. She initially lay in the Norwegian fjords and through her presence posed a constant threat to Allied convoys bound for Murmansk. Despite all protective measures, however, the *Tirpitz* eventually came under the attack of midget submarines and Allied aircraft, and was scuttled in November 1944.

Containing a general introduction to the development of battleships, and with extensive cross-references to *Bismarck*, this title offers a complete guide to the history and construction of one of the most famous German warships ever built.

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